# City Specification No. 429

Reference to HBMC Section 17.04.085

# Huntington Beach Fire Department

## Methane District Building Permit Requirements

The City of Huntington Beach strongly recommends **NOT** building structures over or near abandoned oil wells or hydrocarbon contaminated soil. If abandoned wells can be proven SAFE and/or hydrocarbon contaminated soils conform to Huntington Beach Soil Cleanup Standard 431-92, construction may be allowed at the discretion of the Fire Chief. The presence of abandoned wells and **approved non-remediated soils** shall be disclosed to future property owners.

### REQUIREMENTS

1. **TESTING AND MITIGATION MEASURES FOR OIL AND HYDROCARBON IMPACTED DEVELOPMENT**

   1.1 **Plan Required**
   All proposed oil or hydrocarbon impacted divisions of land, subdivisions and/or property developments shall be reviewed by the Fire Department. The Fire Chief may require a site-soil testing plan to determine the presence of methane gas and/or soil contamination. Such a plan shall be subject to Fire Department approval and may include, but is not limited to, hammer probe, pneumatically driven probe and core hole sampling with monitoring for the presence of methane gas and/or soil contamination. The Fire Chief may require other actions as deemed necessary to ensure development and/or building site safety.

   1.2 **Testing Required**
   Testing for the presence of methane gas or soil contamination may be required to be carried out in accordance with the approved plan. Test results shall be submitted to the Fire Department for review and analysis.

   1.3 **Grading Permit Required**
   Prior to soil testing and/or remediation, the applicant must submit a grading/remediation plan to the Fire Department and the Public Works Department. All grading associated with soil testing and/or remediation shall be performed in accordance with City grading and excavation codes. A grading permit fee may be required.

2. **HYDROCARBON IMPACTED SOIL MITIGATION**

   2.1 **Methane Gas**
   High levels of subsurface methane gas may require mitigation before any grading, development or building construction is allowed. Such mitigation may include, but is not limited to, venting of abandoned oil wells, underground gas gathering and collection systems, vent systems and flared vent systems, down-hole vent systems, methane barriers, methane detection systems, and hydrogen sulfide detection systems. In order to ensure development and building safety, other systems, devices or components may be required as deemed necessary by the Fire Chief.

2.2 **Soil Contamination**
Known or suspected hydrocarbon or other chemical contaminated sites may require one or more of the following evaluations prior to development. For cleanup standards refer to City Specification 431-92.

2.3 **Site Audits Required**

- **Phase I Audit** - The purpose of this audit is to collect and evaluate data to determine if chemical contamination at the site has occurred. Also, it is designed to review the site history, physical setting and uses that took place on the site, and any other site investigations. Additional items to be researched are climate, topography, geology, groundwater, ecological features and other environmental issues.

- **Phase II Audit** - Consists of developing and implementing a testing and sampling plan to investigate concerns raised in the Phase I Audit. The Phase II Audit may be required to contain a site safety work plan and/or a risk analysis, or other safety reviews as deemed necessary. By agreement, these additional plans may be deferred until the Phase III Audit.

- **Phase III Audit** - Incorporating and analyzing the information from the Phase I and Phase II Audits, the Phase III Audit is developed which outlines an appropriate action plan. Results from this analysis help characterize and identify site contamination levels. Additionally, this audit provides information to help assess the nature and magnitude of the risk reduction required, the establishment of cleanup levels, and the selection of appropriate remediation alternatives complying with federal, state and local requirements. The Phase III Audit is concluded with a site closure report. Third party review fees may be required.

## 3. AREA WELL DOCUMENTATION AND REVIEW

3.1 **Project Site Review**
An approved California Department of Conservation Division of Oil, Gas and Geothermal Resources (DOGGR) construction project Site Plan Review shall be on file with the Fire Department PetroChem section. All wells within or potentially within property boundaries must meet current DOGGR abandonment requirements and be reviewed by the Fire Department. A DOGGR Site Plan Review application may be obtained from the Fire Department or:

**Department of Conservation**
**Division of Oil, Gas and Geothermal Resources (DOGGR)**
**5816 Corporate Avenue, Suite 200**
**Cypress, CA 90630-4731**
**(714) 816-6847**
**http://www.consrv.ca.gov/**

3.2 **Oil Well History (third party) Abandoned/Re-abandoned Well Disposition Report**
A California licensed third party petroleum engineer or petroleum geologist shall review all wells located within the project boundaries. For City consultant review, the property owner/developer shall submit third party abandoned oil well reviews to the Fire Department. Minimum requirements for third party reviews are:

- **Well History** – list when drilled; when abandoned. Note special shooting or re-completion work. Note production oil and gas details (or last reported) prior to abandonment.

- **Casing and Liner** – indicate types, depths and pipe grades. Submit copies of the DOGGR well history form, electric log, core data, ditch or sidewall sample description, and driller's log.

- **Cement** – location and amounts; completion and abandonment. Submit copies of DOGGR abandonment form and pertinent well cementing data.

- **Zonal Depths** – list all oil and/or gas zones; show depths.

- **Well Diagram** – show casing, cement and zones roughly to scale.

- **Gas – Leaking at Beginning, During or After Well Work** – report changes. Include gas analysis (C1, C2, etc.) and approximate flow (heavy-medium-light).

- **Final Statements**
  1. Does the well abandonment meet current DOGGR standards or not.
  2. A recommendation for safety measures such as passive venting, barriers, detection systems, and
  3. Determine the level of safety for structures built over or near the well.

3.3 **Oil Well History (City)**

The City consultant shall review all wells located within the project boundaries. Additionally, those wells within 100 feet of the project boundary may require reviewing. The City consultant reviews documents on all abandoned or re-abandoned wells to evaluate well integrity to back up third party reviews and to establish safety measures. The applicant will pay a fee based on the current fee schedule.

3.4 **Soil Test Results**

Based on site characteristics, suspected soil contamination or proximity to a well, soil testing and remediation may be required per City Specification 431-92. All sampling plans must be approved by the Fire Department, and a Public Works grading permit is required. Upon remediation work plan approval, a rough grading permit may be issued.

## 4. SAFETY MEASURES

4.1 **Methane Control System Requirements**

As a redundant safety measure additional to soil remediation, fugitive (methane, etc.) gas collection systems, isolation (methane, etc.) barriers and classified electrical installations serve as a unit to provide a METHANE CONTROL SYSTEM.

4.1.1 All structures within 100 feet of an oil well, active or abandoned, shall have an approved methane control system.

4.1.2 All on-site abandoned oil wells shall be provided with an approved vent cone and have a vent system directed to atmosphere. All structures over or within 10 feet of an abandoned oil well shall protect the vent riser in the exterior wall. Abandoned wells greater than 10 feet from a structure shall be remotely vented or placed as directed by the City consultant and the Fire Chief.

4.1.3 All structures adjacent to, in or near hardscaped areas over or adjacent to active or abandoned oil wells shall have their safety measures determined on a case-by-case basis by the Fire Chief and the City consultant.

4.1.4 Structures **NOT** located adjacent to wells, but in areas of dense past or present oil production, areas of suspected, known or non-remediated, non-hazardous hydrocarbon contamination, naturally occurring biological methane, or other soil contaminates may require methane control systems as determined by the City consultant and the Fire Chief.

4.1.5 The electrical wiring method within a determined safety measure radius shall be Class I, Division 2, unless otherwise noted by the Chief Electrical Inspector (detail F5, 6 & 6.1).

4.1.6 Methane barrier material and application methods shall be Fire Department and Building Department approved.

4.1.7 All penetrations must be sealed, inspected and approved. Metallic penetrations must be epoxy coated and have Fire Department approval (concrete screed stakes are expressly **NOT** permitted to penetrate the barrier). Extreme efforts should be made to make all plumbing supports and other miscellaneous permanent penetrations non-metallic and all such penetrations must be sealed and inspected.

4.2 **Methane Collection**

4.2.1 Shall be installed as a unit with an approved methane barrier and located in the sub-slab area (detail F9).

4.2.2 Shall be shown superimposed on the foundation plan.

4.2.3 Shall be a minimum three (3) inch, approved, sock-wrapped, perforated pipe placed in a one (1) foot by one (1) foot sanded trench directly beneath the methane barrier (detail F4.3), or approved 12 inch sock-wrapped, flat pipe placed as determined by the City consultant. Other materials and methods to be approved on a case-by-case basis.

4.2.4 All foundation penetrations shall be sleeved (details F2.2-4).

4.2.5 Exceptions to the above shall be Building Department, Public Works Department and Fire Department approved.

4.3 **Methane Barriers**

4.3.1 All methane barriers shall be check & repair smoke tested prior to final inspection.

4.3.2 All systems shall be final smoke tested after check & repair smoke testing. Calls for inspection prior to initial check & repair smoke testing are subject to additional inspection fees.

4.4 **Well Vent System Requirements**

4.4.1 **Design**
All vent systems shall be of a type and design approved by the Fire Chief. Any design not in conformance with this specification is subject to a certified engineer's review and approval. The design and installation shall be in conformance with applicable codes, such as the Uniform Building Code, Mechanical Code and Plumbing Code (detail F10).

4.4.2 **Plans**
When a vent system is required, the developer shall call out the requirement on the plans showing the following:

- Type of vent collector/cone (cross section), see detail F10
- Routing under slab/footing
- Routing through the exterior wall and roof, see details F7-7.4
- Type and size of materials

4.4.3 **Conduit Penetrations**
Underground electrical conduits penetrating the slab or foundation of the building shall comply with National Electric Code (NEC), which may require a seal off device as normally found on classified electrical installations. This device is intended to prevent the travel of gas into the occupied portion of the structure through conduit runs. Any device installed shall be approved by the City's Chief Electrical Inspector (detail F5). Additionally, vertical footing penetrations shall be protected with trowel grade liquid boot or its equivalent.

4.4.4 **Installation and Inspection**

4.4.4.1. **Vent Collectors/Cones** – Shall be inspected prior to backfilling the excavation and after the collector is placed over the well casing top plate.

4.4.4.2 **Foundation (Prior to Pour)** – An integrity check of the vent collector and inspection of the sub-slab vent pipe routing shall be conducted. The "first" elbow shall be left unglued for this check and shall be glued after the inspection prior to backfill.

4.4.4.3 **Exterior Wall Vent Riser (Prior to Drywall)** – A visual inspection of vent pipe joint integrity and routing through the exterior wall shall be conducted. The inspection is conducted after framing and prior to drywall installation.

4.4.4.4 **Vents** – PVC piping shall be installed with listed pipe, primers and cements. Galvanized piping shall be installed using threaded pipe with a listed pipe compound or UPC approved NO HUB fittings (HBMC 17.44 Section 3.10).

4.4.4.5 **Test Tee** - The installer shall provide an accessible test tee flush with the exterior wall surface near ground level for the purpose of testing the vent system and providing an access opening for future vent system monitoring. The tee shall be provided with a threaded, raised hex-head plug or cap of like material. No flush plugs are allowed. **Hex-head plugs and caps shall be painted red and maintained in red for the structure's duration.**

4.4.4.6 **Air Test** - Installer shall provide an air test at five psig for a period of not less than 15 minutes. The test is only for the piping above the test tee to through the roof. After the testing is approved, the threaded plug or cap shall be installed back into the tee (HBMC 17.44 Section 712.0).

4.4.4.7 **Final Inspection** - A square metal brass tag identifying the tee as a methane collection system vent, stamped "MCS," and/or a round metal brass tag identifying the tee as a well vent, stamped "WV," shall be issued upon final inspection and approval of the vent system. The appropriate tag shall be affixed by the developer and attached to the test tee plug or cap with a stainless steel fastener.

4.4.5 **Vent Piping**

Each vent cone or collector shall be provided with a path to the atmosphere by means of a vent pipe installed in accordance with this section.

4.4.5.1 **Minimum Pipe Size** – The minimum pipe size is two (2) inches, with a maximum total length of 120 feet. Horizontal distance cannot exceed 40 feet with two (2) inch piping. Each 90 degree elbow will equal four (4) feet of pipe length. Any distances over these totals will require the vent pipe to be increased one pipe size (HBMC 17.44 Table 7-5).

4.4.5.2 Manifolding of vents is prohibited without prior approval (HBMC 17.44 Section 301.2.2).

4.4.5.3 **Materials** – Exterior wall vent pipe risers shall be a minimum of two (2) inch galvanized steel. All other areas may be a minimum of two (2) inch PVC (HBMC 17.44 Section 903.1).

4.4.6 **Vent Termination**

4.4.6.1 The system shall allow gases to escape at a minimum of 16 feet above grade or 12 inches above the slope of the uppermost roofline where the vent pipe extends through the roof from an exterior wall (detail F7, 7.3-4).

4.4.6.2 Each vent pipe shall extend through its flashing and shall terminate vertically not less than six (6) inches above the roof nor less than one (1) foot from any vertical surface. (HBMC 17.44 Section 906.0)

4.4.6.3 Joints at the roof around the vent pipe shall be made watertight by the use of approved flashing or flashing materials (HBMC 17.44 Section 906.0).

4.4.6.4 Each vent shall terminate not less than 10 feet from, or less than three (3) feet above any opening into the building in every direction, and three (3) feet from any lot line, alley or street (HBMC 17.44 Section 906.0).

4.4.6.5 Each vent pipe adjacent to a sun deck must be located a minimum of 10 feet from all sides of the walking deck (HBMC 17.44 Section 906.0).

4.4.6.6 Vent pipes not incorporated into a structure shall be extended at least 16 feet above the surrounding ground surface (detail 7.4) (HBMC 17.44 Section 906.0).

4.4.7 **Protection of Piping**

4.4.7.1 When the vent is routed through a structure, the vertical vent piping shall be installed in an exterior wall only, minimum of five (5) feet from electrical panels, water heaters, fireplaces or other sources of heat or ignition.

4.4.7.2 Vent pipes shall be routed in such a fashion so as to provide the straightest possible path and shall avoid windows, doors, significant structural members or other obstructions.

4.4.7.3 No electrical or other outlets are to be located within the same stud bay as vent piping.

4.4.7.4 Vent pipes that run under slabs shall have a 12 inch (minimum) sand backfill surrounding the pipe, and shall be protectively wrapped through any footing or slab. Note that the barrier may not be joined to the protective wrap. Additionally, vent trenches shall be graded back towards the vent cone (HBMC 17.44 Section 313.0).

4.4.7.5 Horizontal PVC well-vent pipe runs shall be protected by a minimum of two (2) inches of concrete or placed in an approved conduit. Either must be placed in a minimum three (3) foot deep by six (6) inch wide sanded trench. Additionally, these horizontal runs shall be provided with a 14 gauge solid-strand yellow insulated utility locator wire.

4.4.7.6 Straps and clamps securing vent system piping or bracing shall adequately support the weight of the system, thereby relieving the weight on joints or elbows. Vent piping shall be secured at intervals of four (4) feet. **Galvanized pipes require riser clamps at each floor, including the attic (HBMC 17.44 Section 313.0).**

4.4.7.7. All vent pipes passing through rated penetrations shall be fire stopped (HBMC 17.44 Section 313.0).

4.4.7.8. As-built plans shall be submitted and approved by the Fire Department and shall indicate all horizontal well-vent pipe runs located outside structural footprints. Plans shall be to scale.

4.5 **Alarm Systems**

4.5.1 An approved methane detection system (alarm system) may be required in subterranean structures built over, or near, abandoned or re-abandoned wells, or upon approved non-remediated hydrocarbon contaminated soils.

# Methane District Building Permit Requirements

APPROVED: _____ DATE: _____
Michael P. Dolder, Fire Chief

_____ DATE: _____
Ray Silver, City Administrator

CAUTION

METHANE GAS
IN PIPE

IF DAMAGED NOTIFY FIRE DEPT.–911

NO SMOKING
NO SPARKS OR FLAMES
WITHIN 25 FEET

STICKER TO BE
APPLIED AT VENT TOP

3" X 4" WIDE,
ALL SIGNS PLASTIC WITH
ADHESIVE BACKING,
LARGE LETTERS MIN. 1/2" HIGH
WHITE LETTERS ON RED BACKGROUND.

THIS SIGN SHALL BE POSTED ON EACH VENT RISER NEAR THE TOP, AND ALSO ON ANY EXPOSED RISER PIPING IN GARAGE AREA.

CITY OF HUNTINGTON BEACH

FIRE DEPARTMENT

# CAUTION SIGN AT VENT PIPE

STANDARD PLAN
F1

# WARNING

THIS BUILDING IS PROTECTED WITH A VAPOR CONTROL BARRIER. ANY PROPOSED PENETRATION OR ALTERATION OF FLOOR SLAB REQUIRES NOTIFICATION OF THE BUILDING OFFICIAL AND INSPECTION BY A QUALIFIED ENGINEER.

IT IS ILLEGAL TO REMOVE THIS SIGN.

ALL SIGNS SHALL BE ENGRAVED 2-COLOR 2-PLY PLASTIC LAMINATE.

ALL LETTERS MIN. 1/2" HIGH RED LETTERS ON WHITE BACKGROUND.

POST AT MAIN ENTRY OR PER OWNER/ ARCHITECT/ FIRE DEPARTMENT

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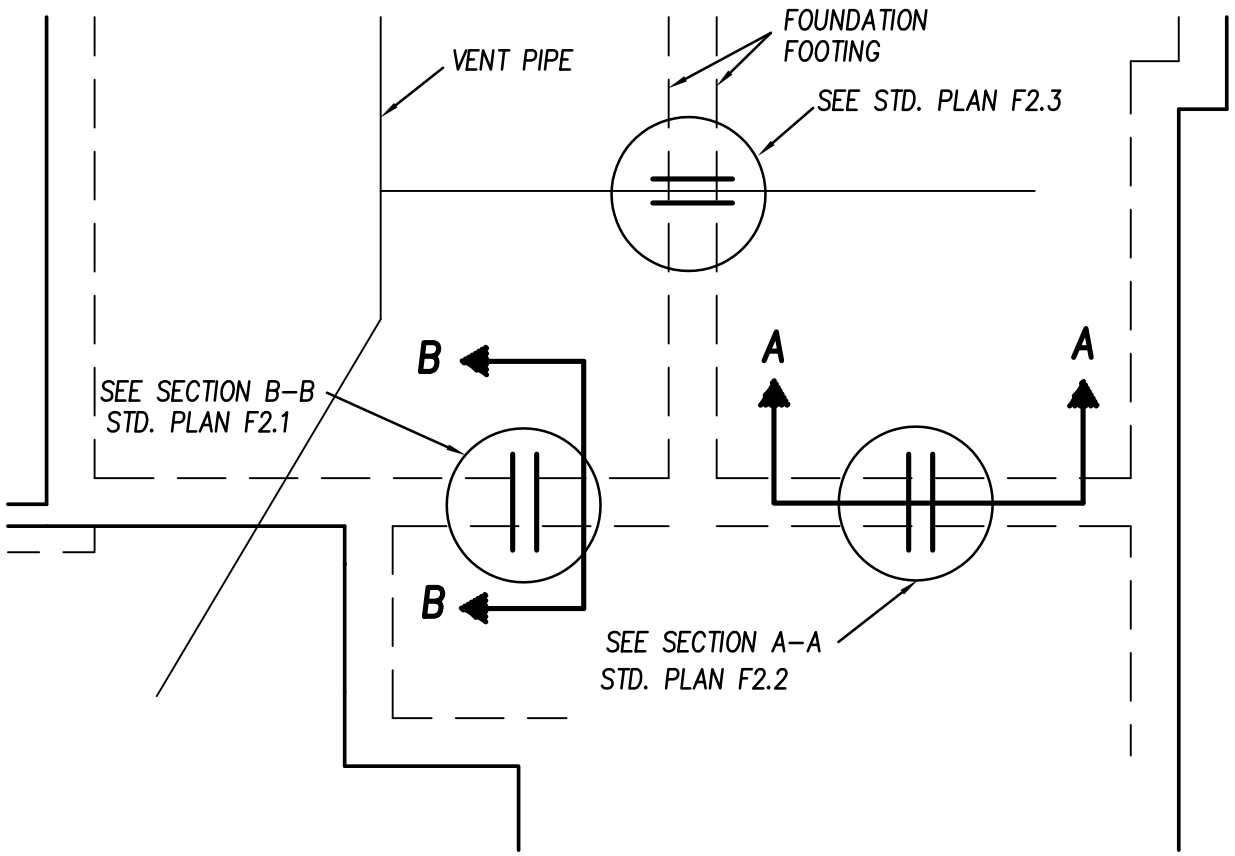
WARNING SIGN

STANDARD PLAN F1.1




NO SCALE

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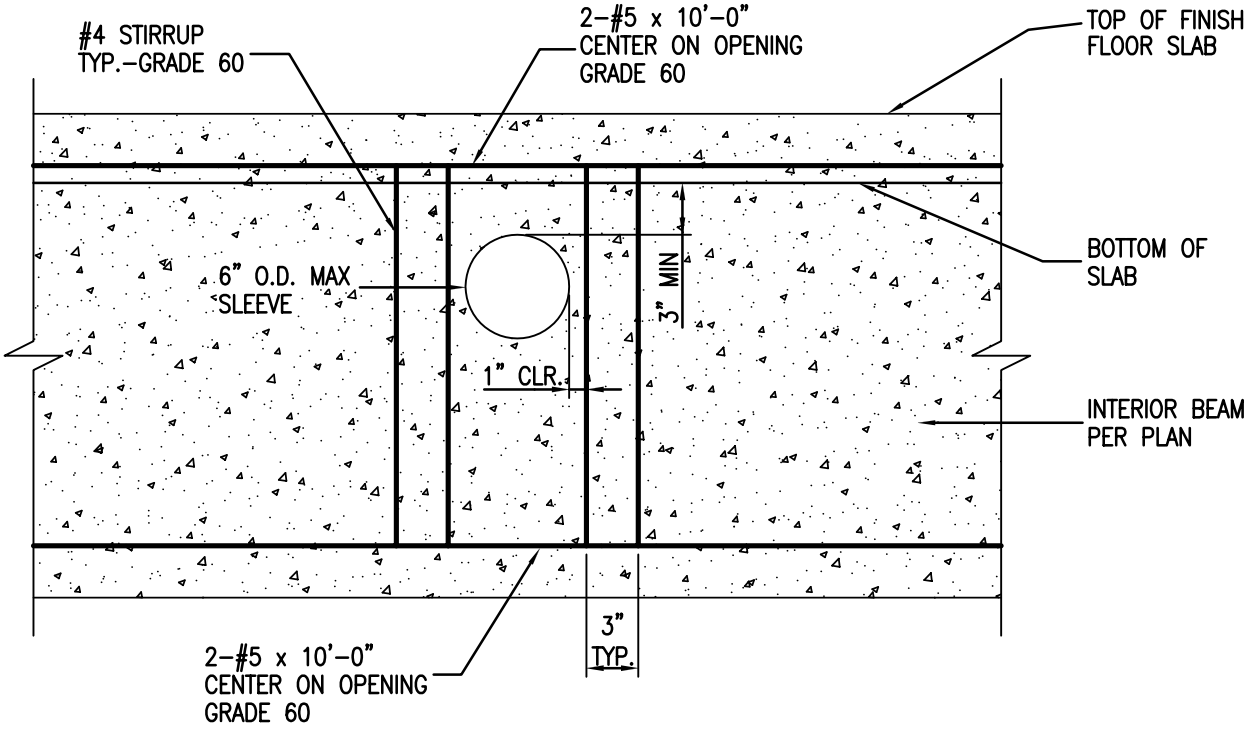
# FOUNDATION AND FOOTING DETAIL

STANDARD PLAN F2




*NO SCALE*

# *SECTION A–A*

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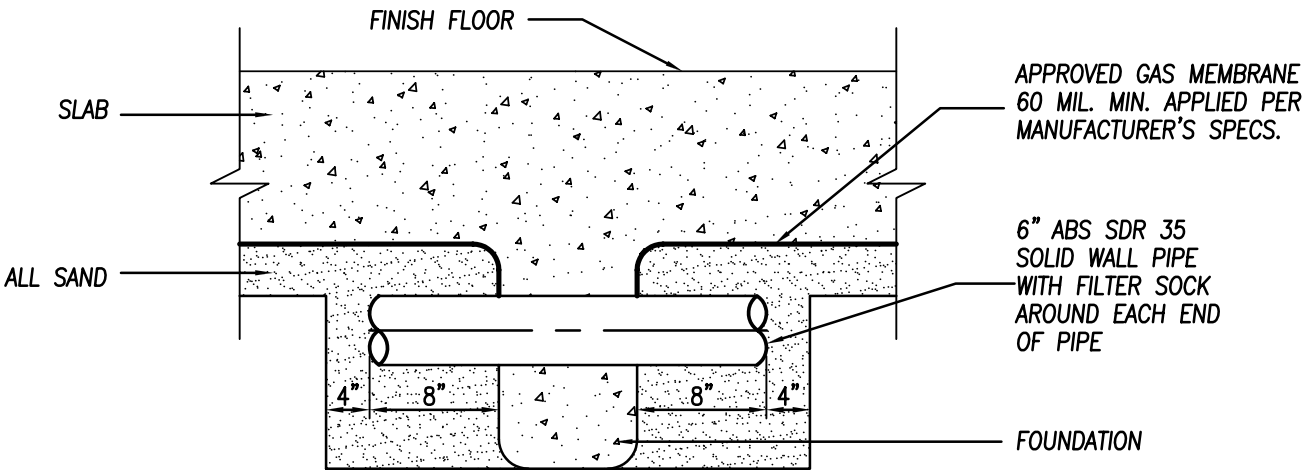
## FOOTING OPENING FOR VENT PIPE

STANDARD PLAN
F2.1




NO SCALE

# SECTION B–B

CITY OF HUNTINGTON BEACH

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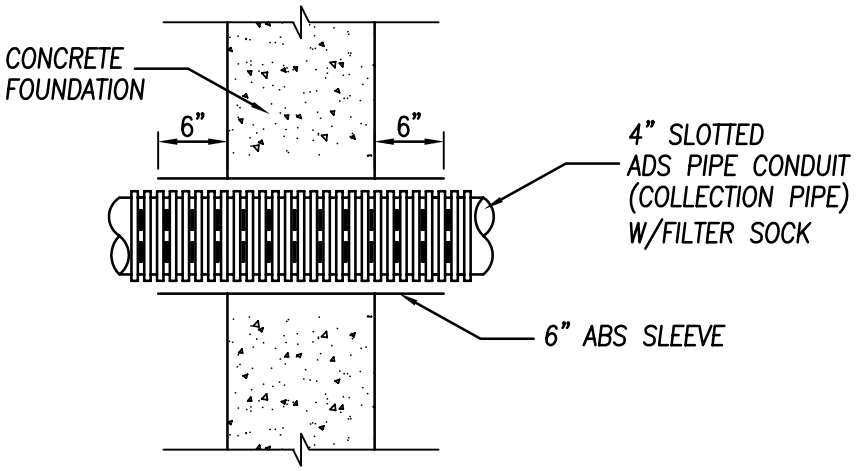
## VENT PIPE THROUGH FOUNDATION

STANDARD PLAN F2.2




**PLAN VIEW**

NO SCALE

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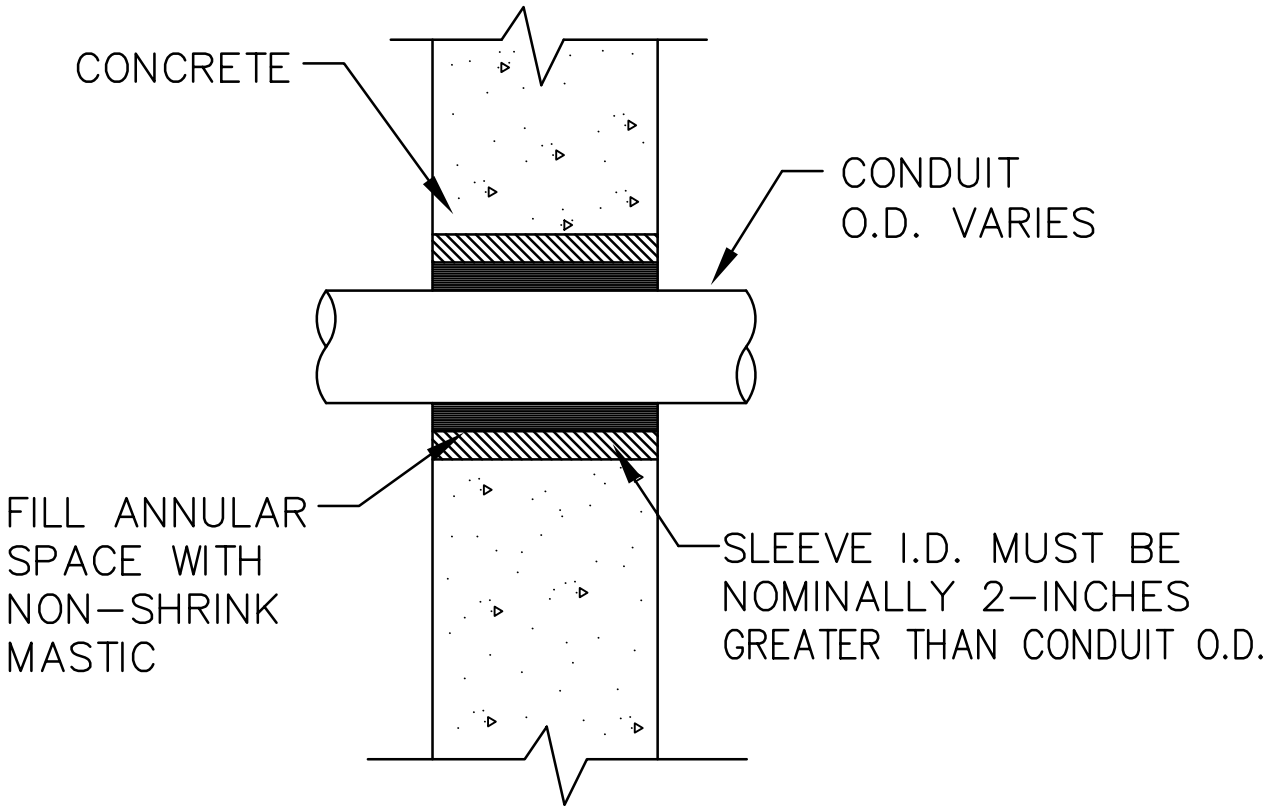
# VENT PIPE THROUGH SLEEVE

STANDARD PLAN
F2.3

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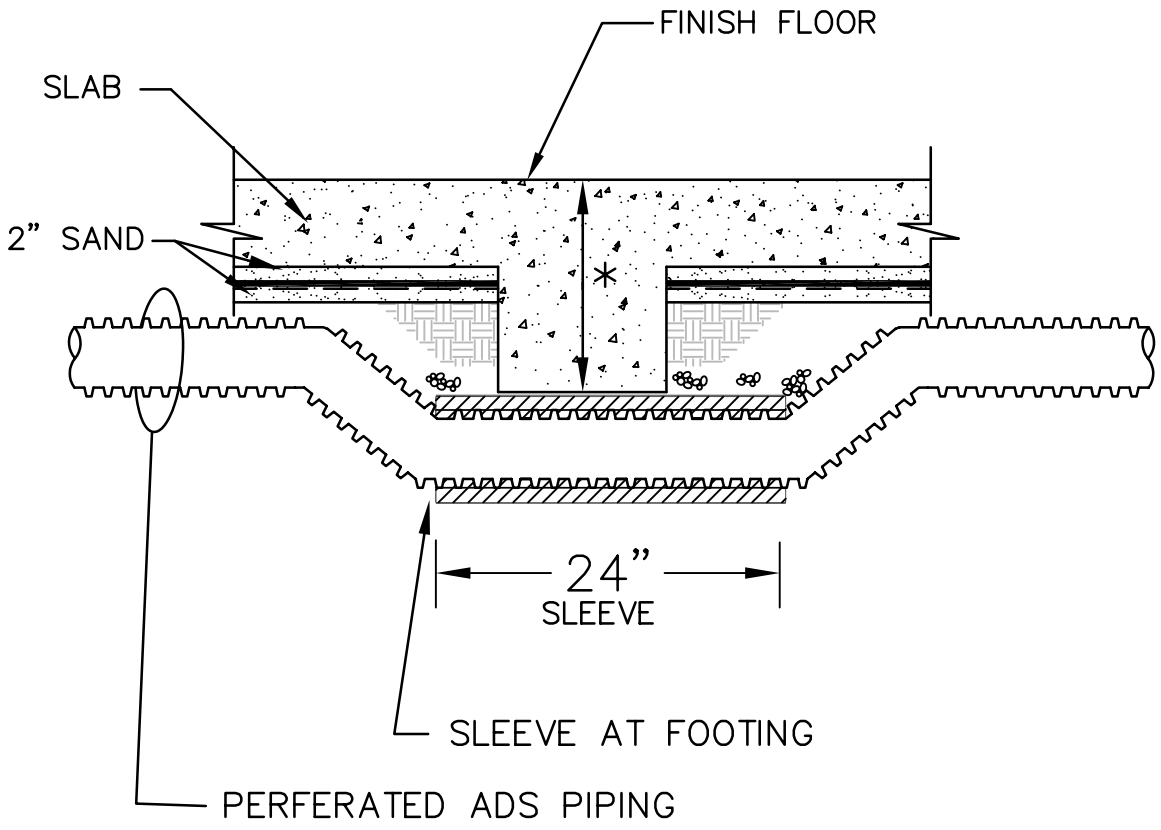
# SLEEVE

STANDARD PLAN

F2.4




* UP TO 18" USE THIS DETAIL (SLEEVE UNDER FTG.)

* > 18" USE 'PIPE UNDER/ THROUGH BEARING FOOTING' DETAIL

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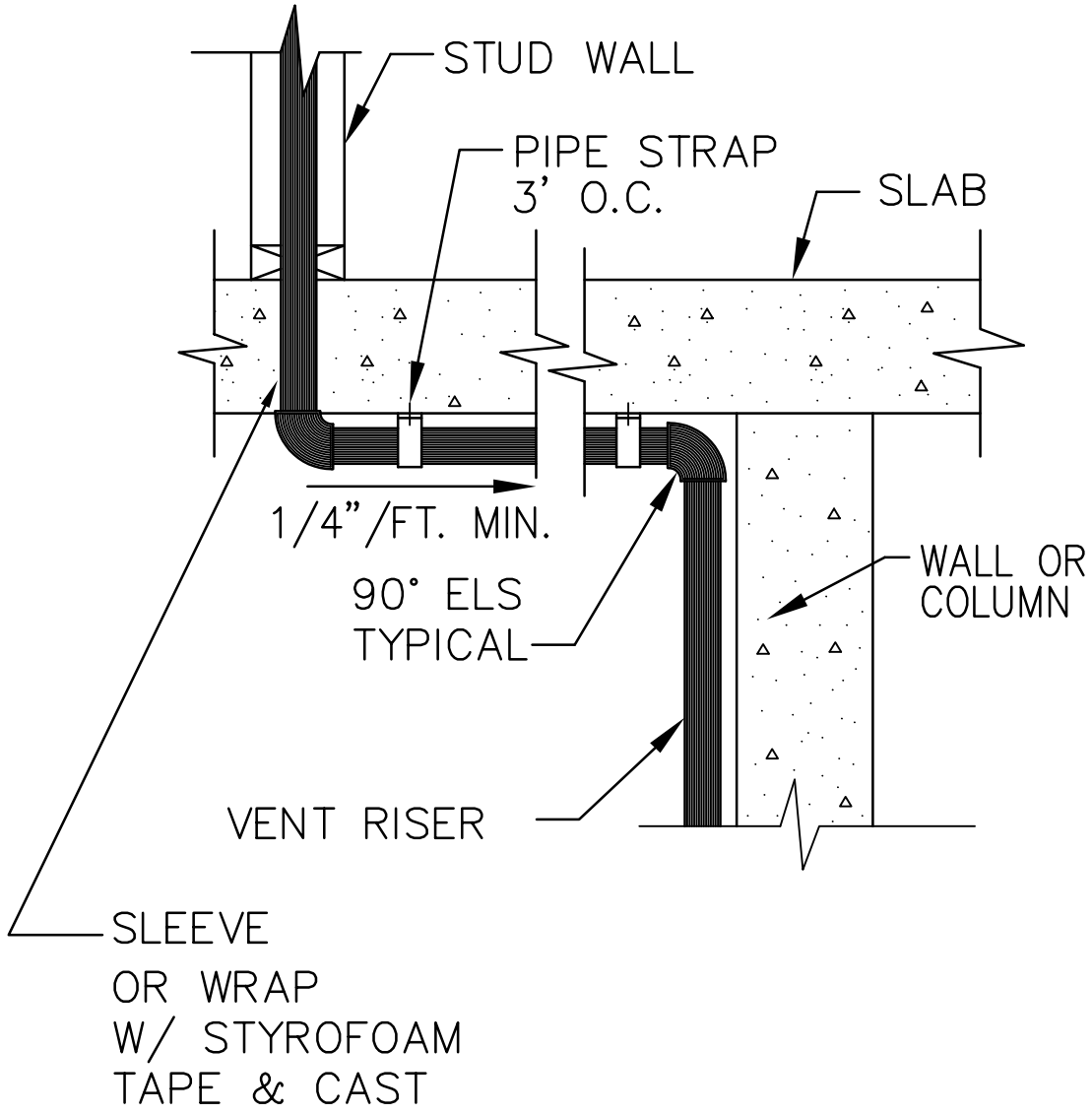
FIRE DEPARTMENT

# VENT PIPE AT INTERIOR FOOTING

STANDARD PLAN F2.5

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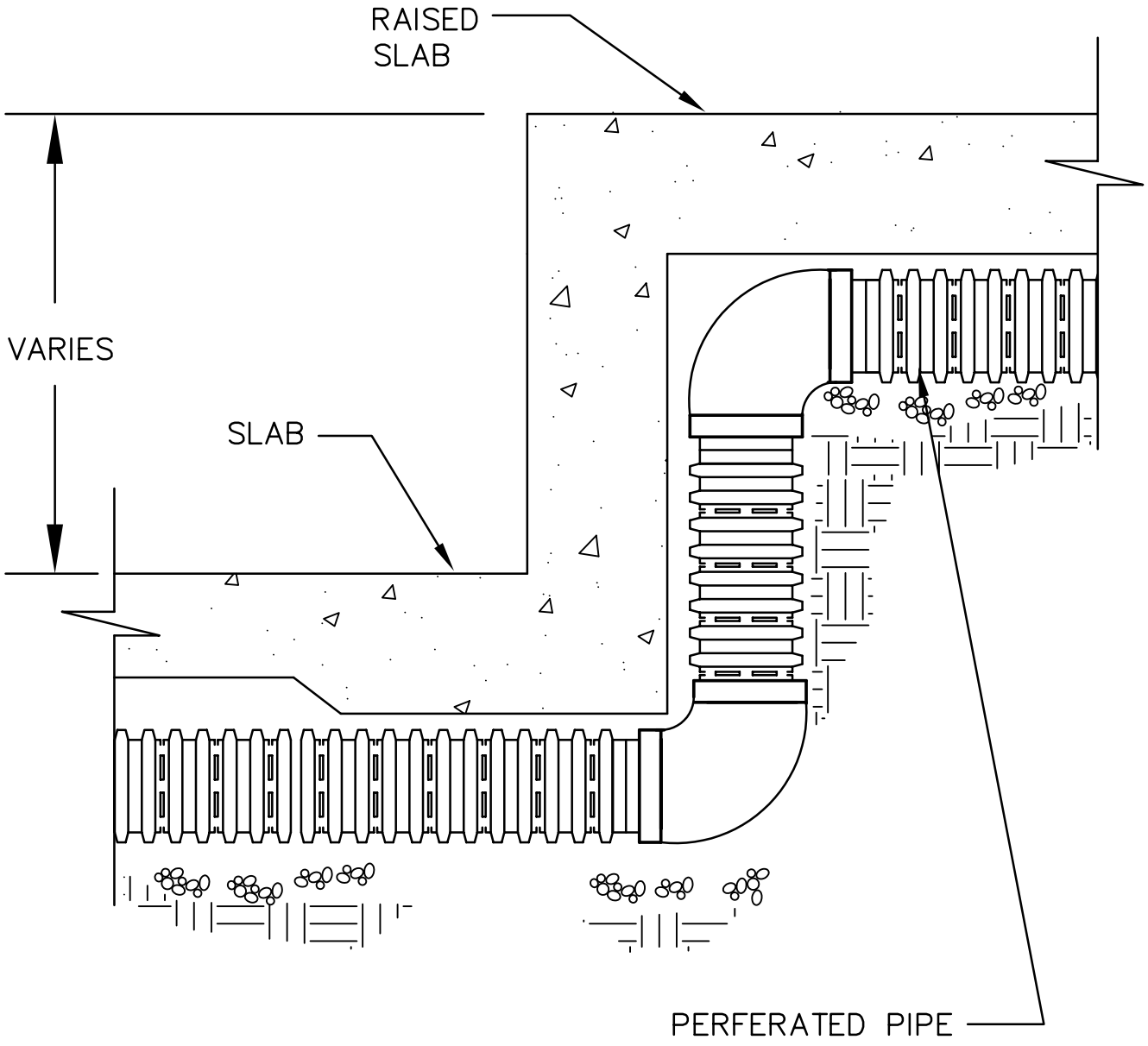
# PIPE INTO INTERIOR STUD WALL

STANDARD PLAN

F2.6

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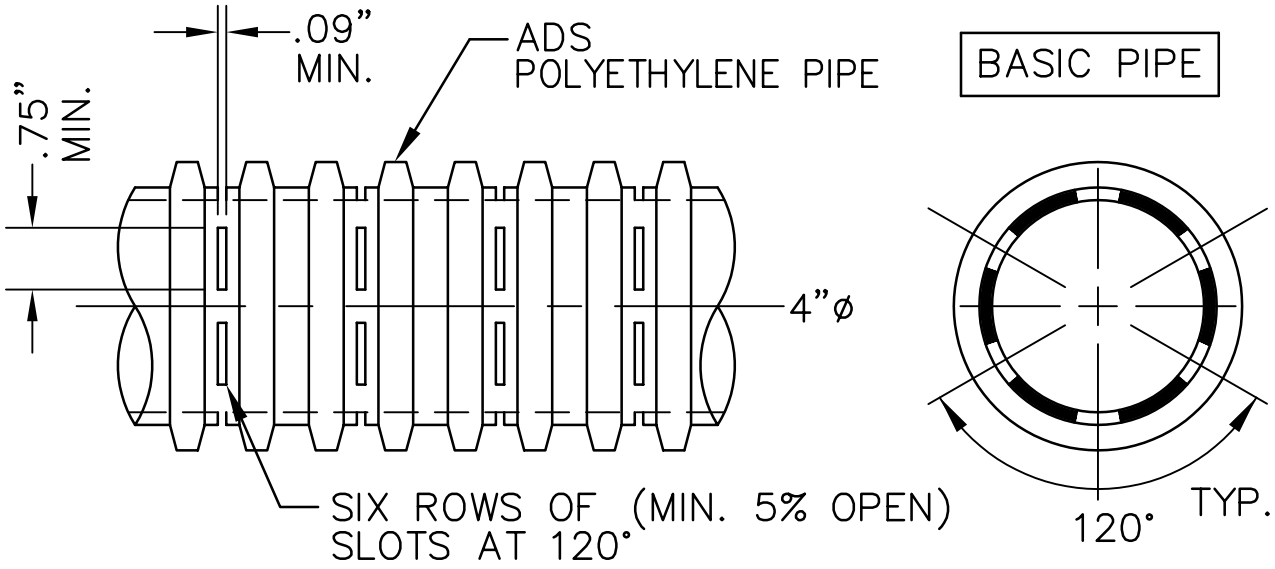
# SLAB STEP AT 15"+ DROPS

STANDARD PLAN

F2.7




NOTE: PREWRAPPED ADS FILTER PIPE ("SOCK PIPE")
MAY BE USED AS AN ALTERNATE.
ADS TELEPHONE (800) 733–1993

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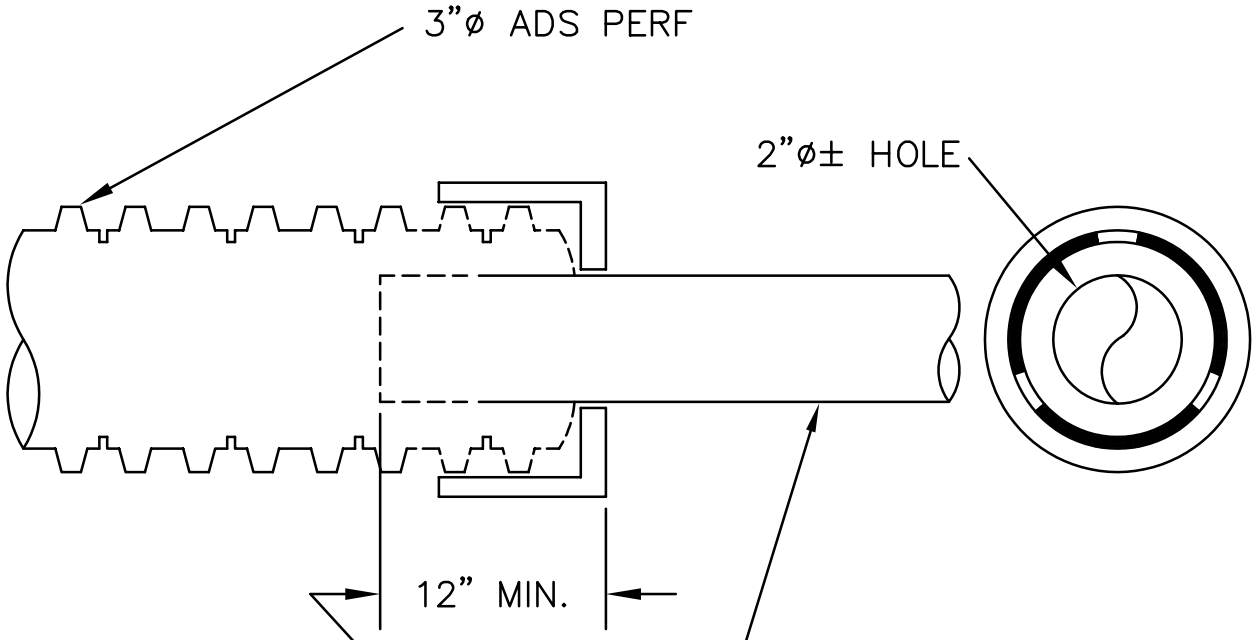
# 3" ADS PIPE

STANDARD PLAN
F3




USE FERNCO 1070–32 OR FABRICATE THIS DETAIL K TO SATISFACTION OF METHANE INSPECTOR

2"ø NON–PERF. GALVANIZED STEEL TAPE WRAPPED BELOW TOP OF SLAB.

CITY OF HUNTINGTON BEACH

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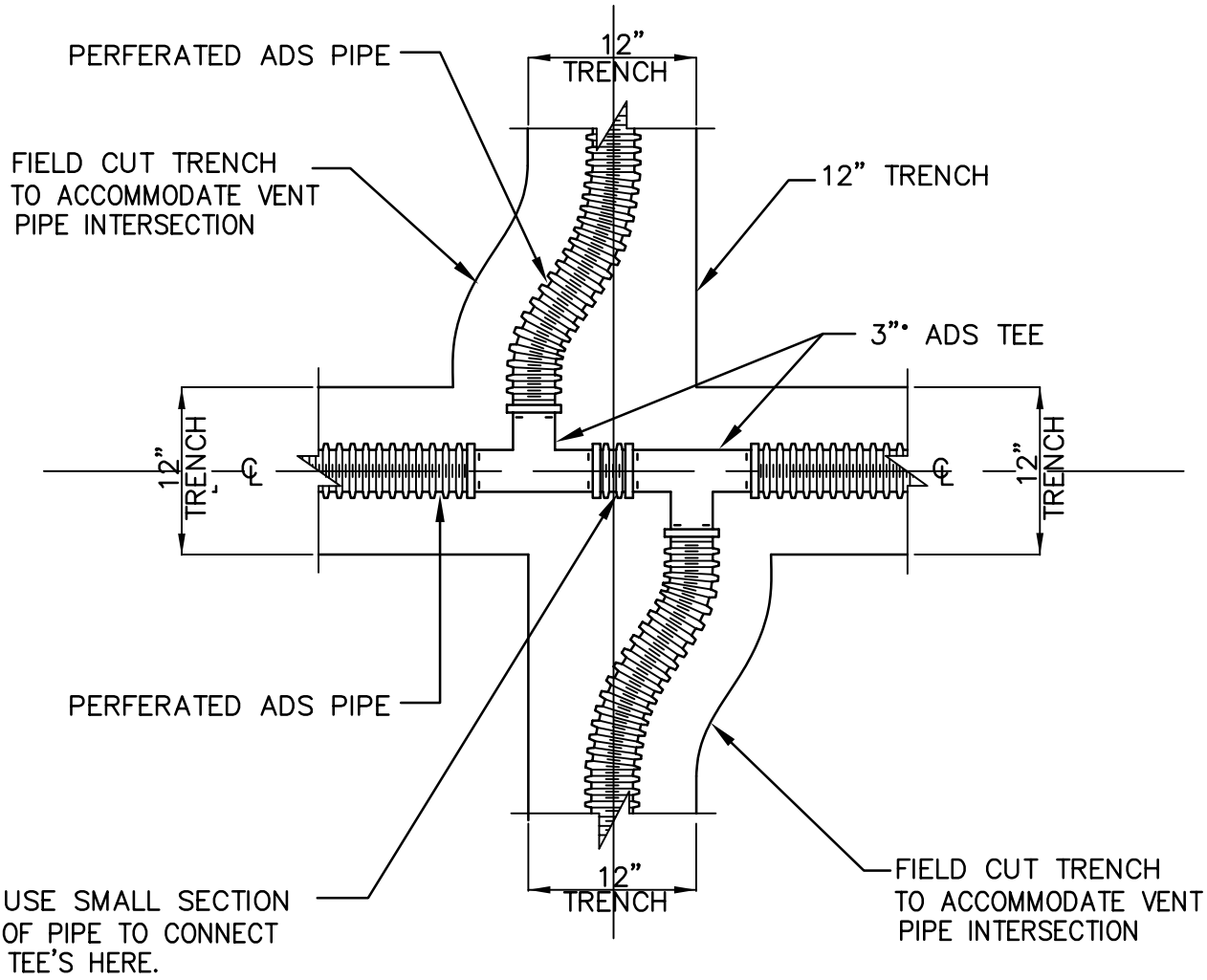
# ADS/PVC TRANSITION FITTINGS

STANDARD PLAN F3.1




# VENT PIPE AT FOUR WAY INTERSECTION

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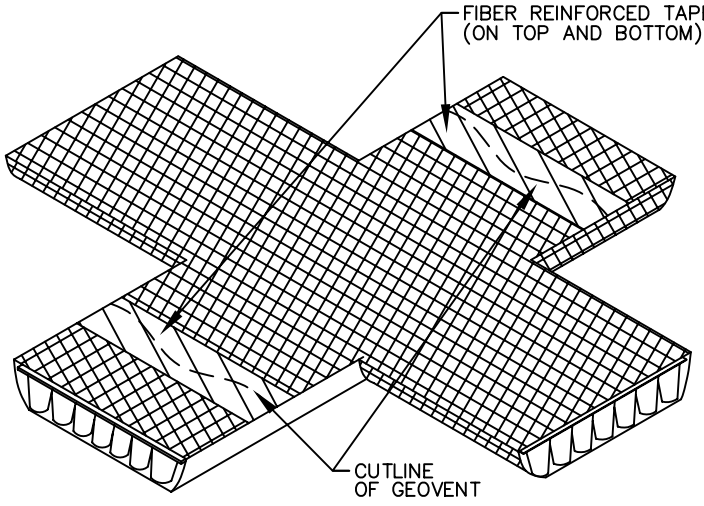
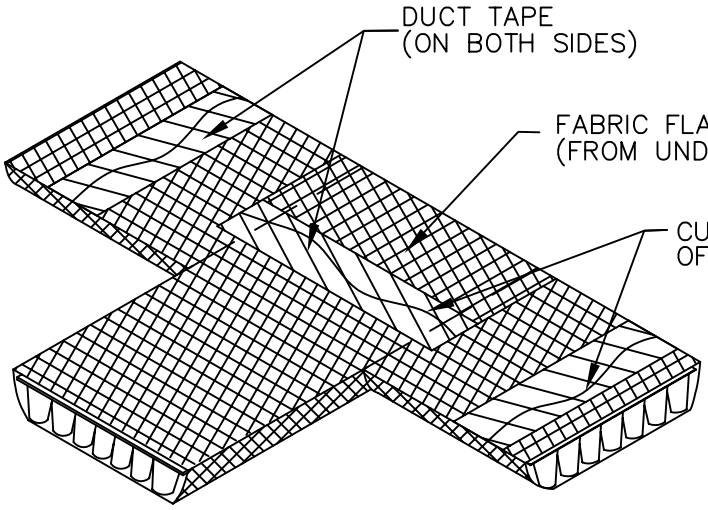
VENT PIPE AT FOUR WAY INTERSECTION

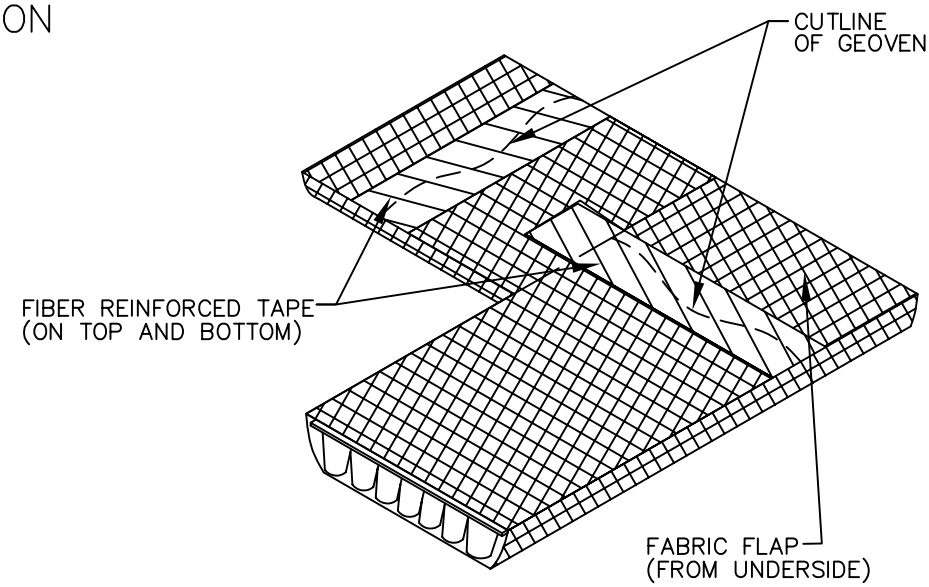
STANDARD PLAN F3.2




FOUR WAY INTERSECTION




TEE INTERSECTION




90° INTERSECTION

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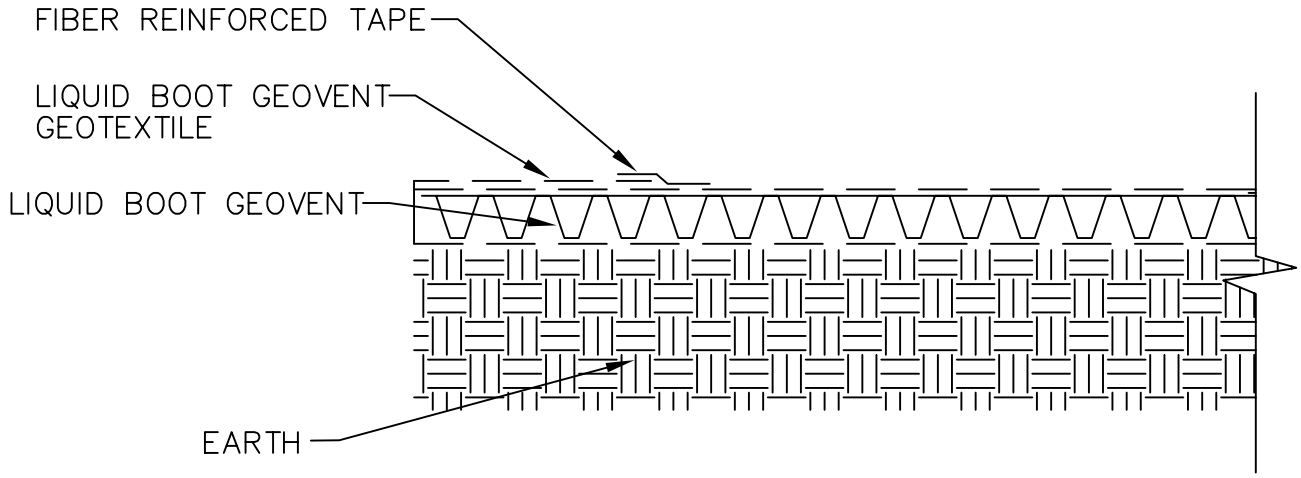
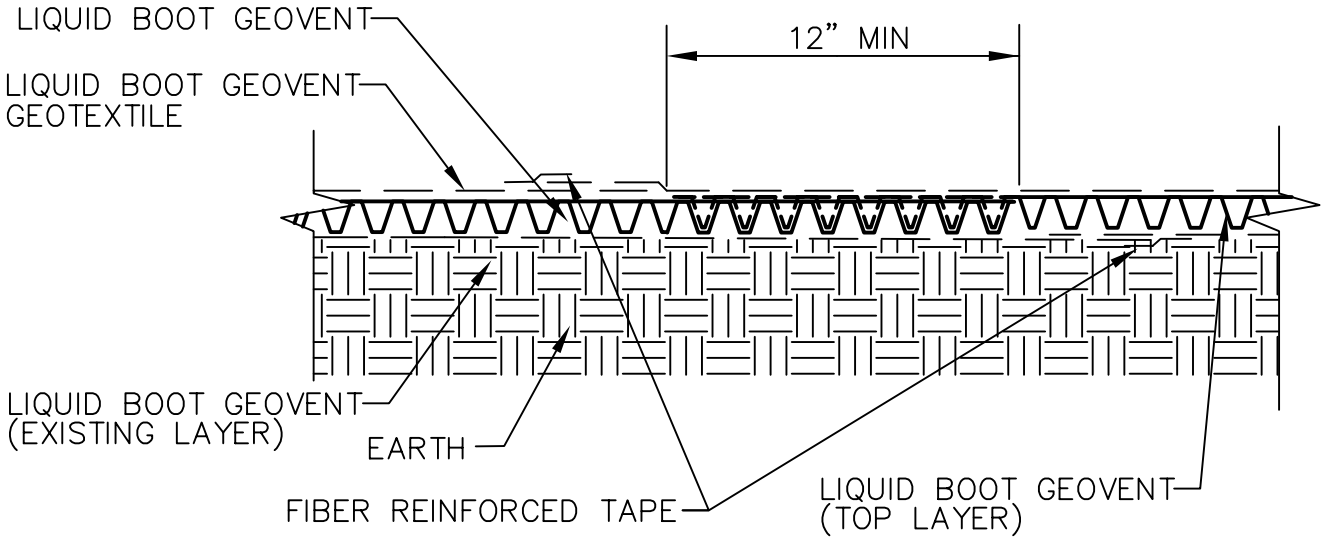
# GEOVENT AT INTERSECTION

STANDARD PLAN

F3.3




GEOVENT TERMINATION




INTERLOCKING CONNECTIONS

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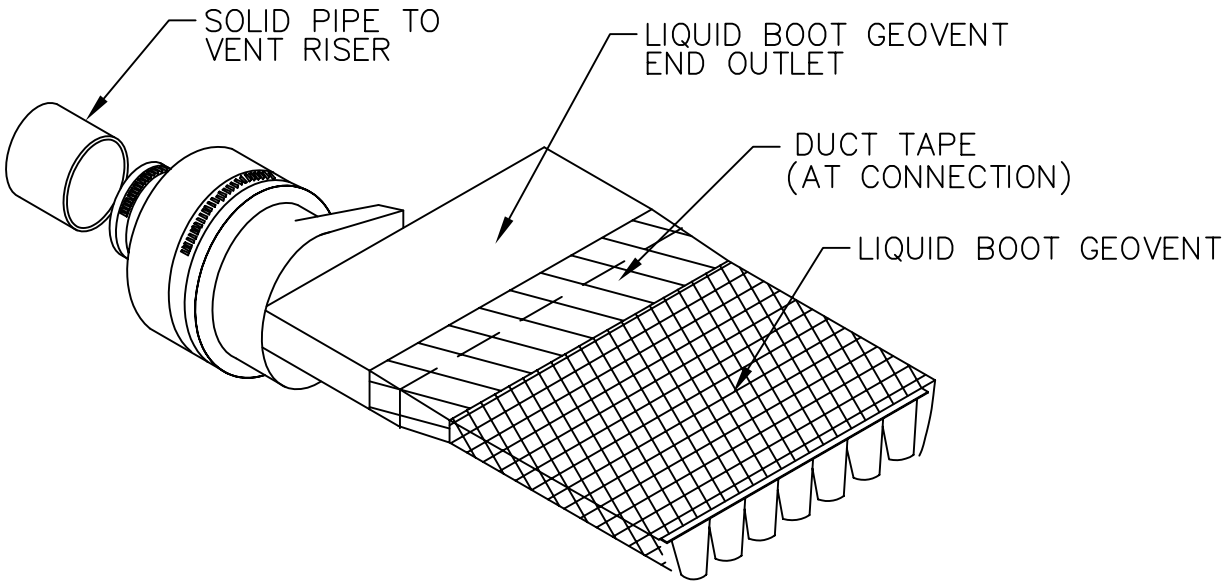
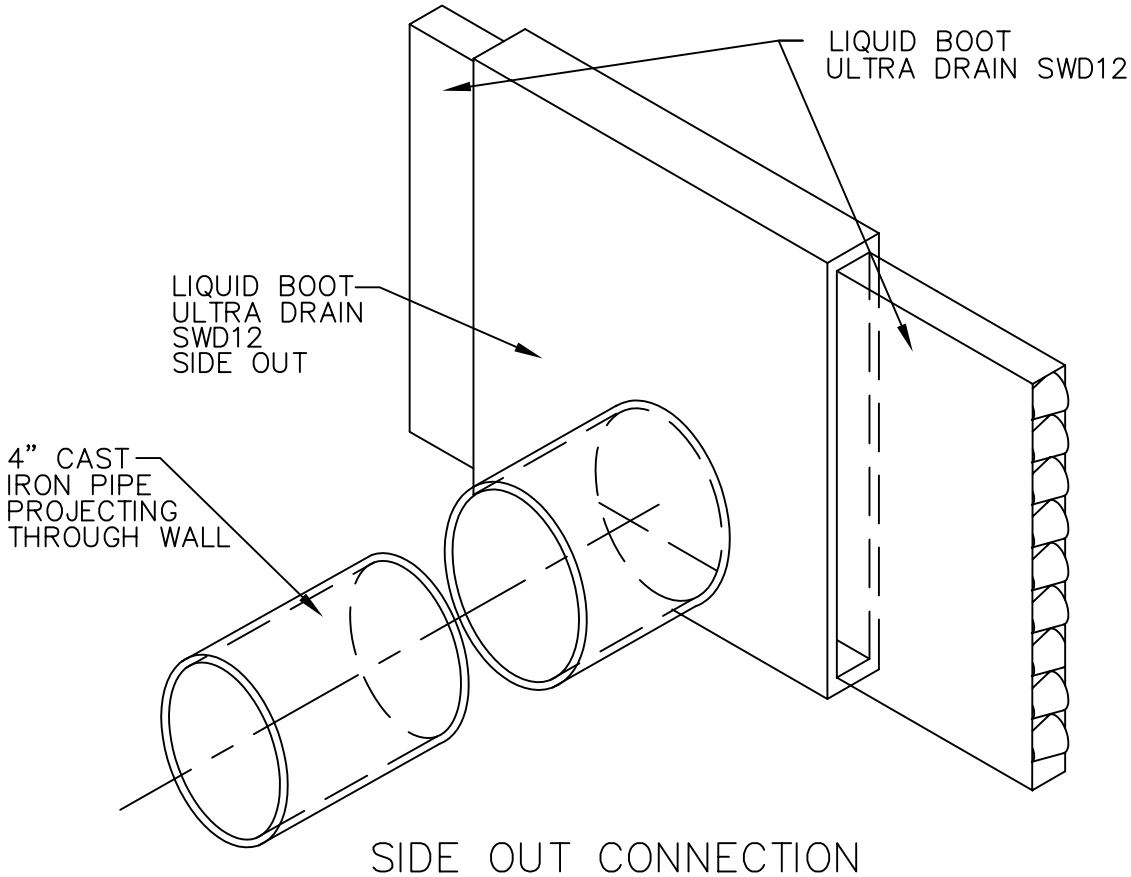
# GEOVENT CONNECTION/TERMINATION

STANDARD PLAN F3.4




GEOVENT TO ROUND TRANSITION




SIDE OUT CONNECTION

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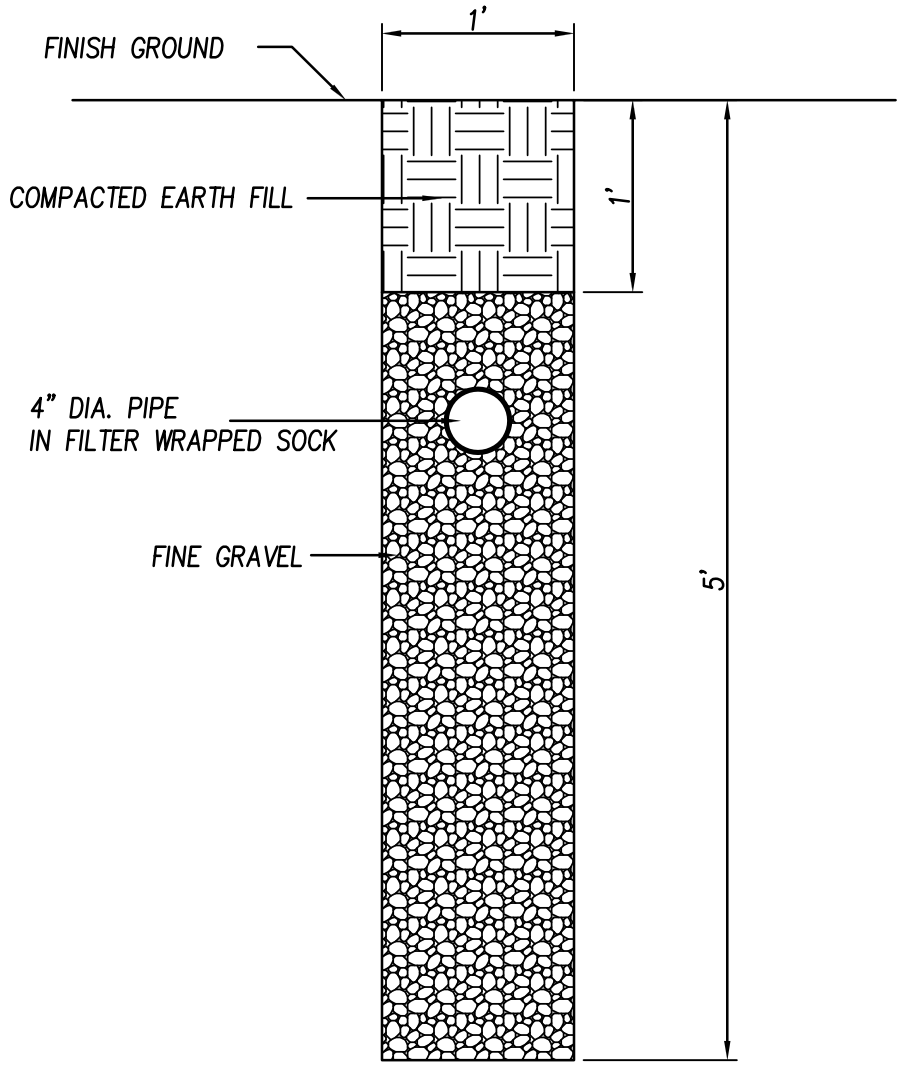
# GEOVENT TRANSITION/CONNECTION

STANDARD PLAN

F3.5




NO SCALE

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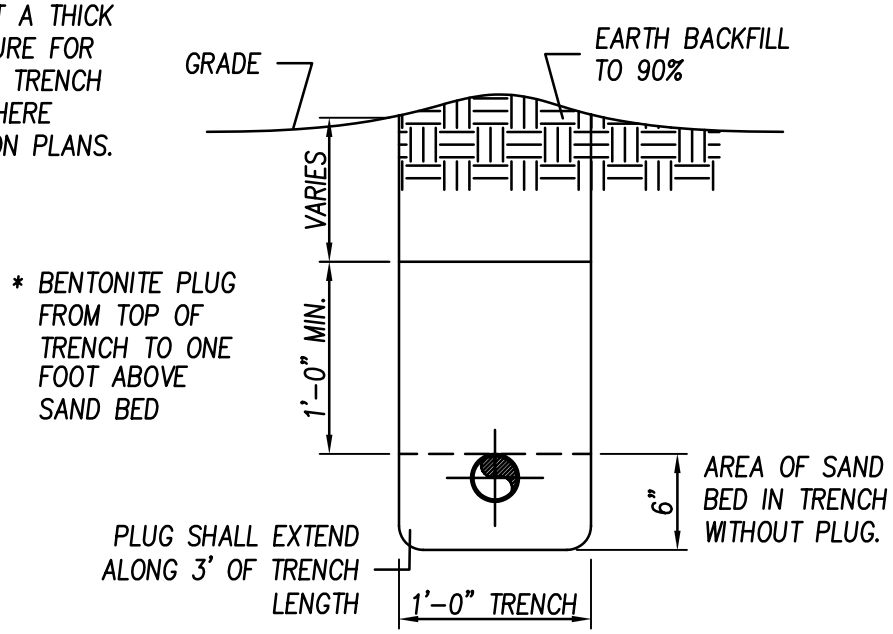
FIRE DEPARTMENT

# TRENCH DETAIL

STANDARD PLAN

F4

* DRY MIX 1 PART BENTONITE WITH 3 PARTS FINE SAND OR FINE MATERIAL WITHOUT ROCKS, CLODS OR COBBLES. THEN ADD WATER TO GET A THICK FLOWING MIXTURE FOR PLACEMENT IN TRENCH AS SHOWN, WHERE CALLED FOR ON PLANS.



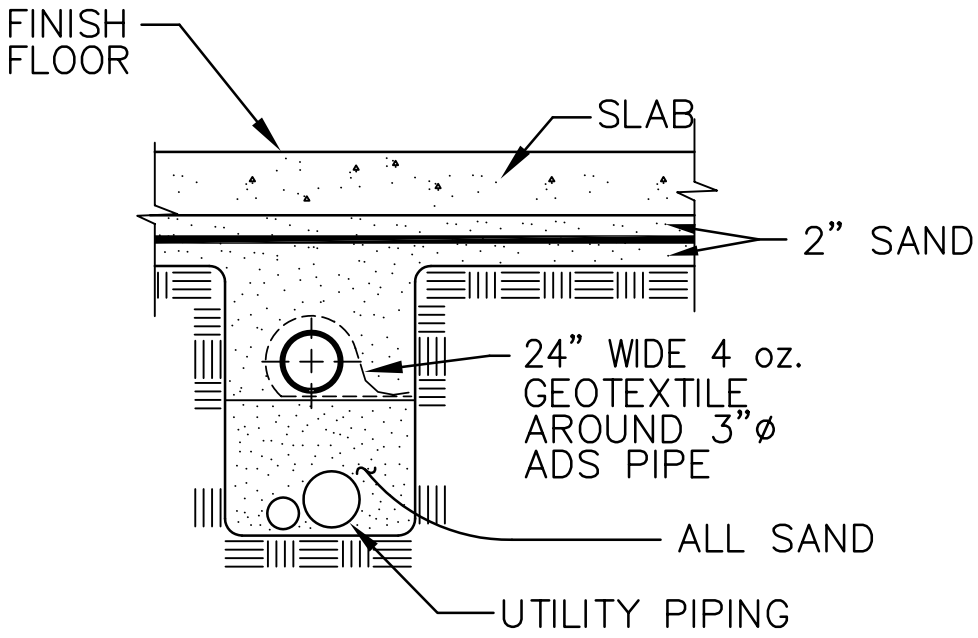

NO SCALE

CITY OF HUNTINGTON BEACH

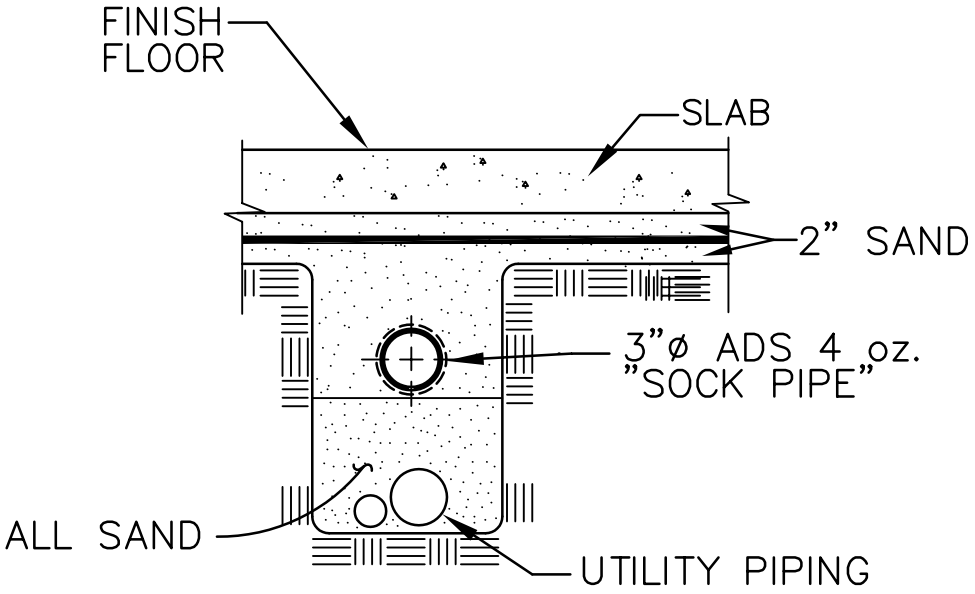
FIRE DEPARTMENT

# TRENCH PLUG

STANDARD PLAN F4.1




ALTERNATE 1




ALTERNATE 2

CITY OF HUNTINGTON BEACH

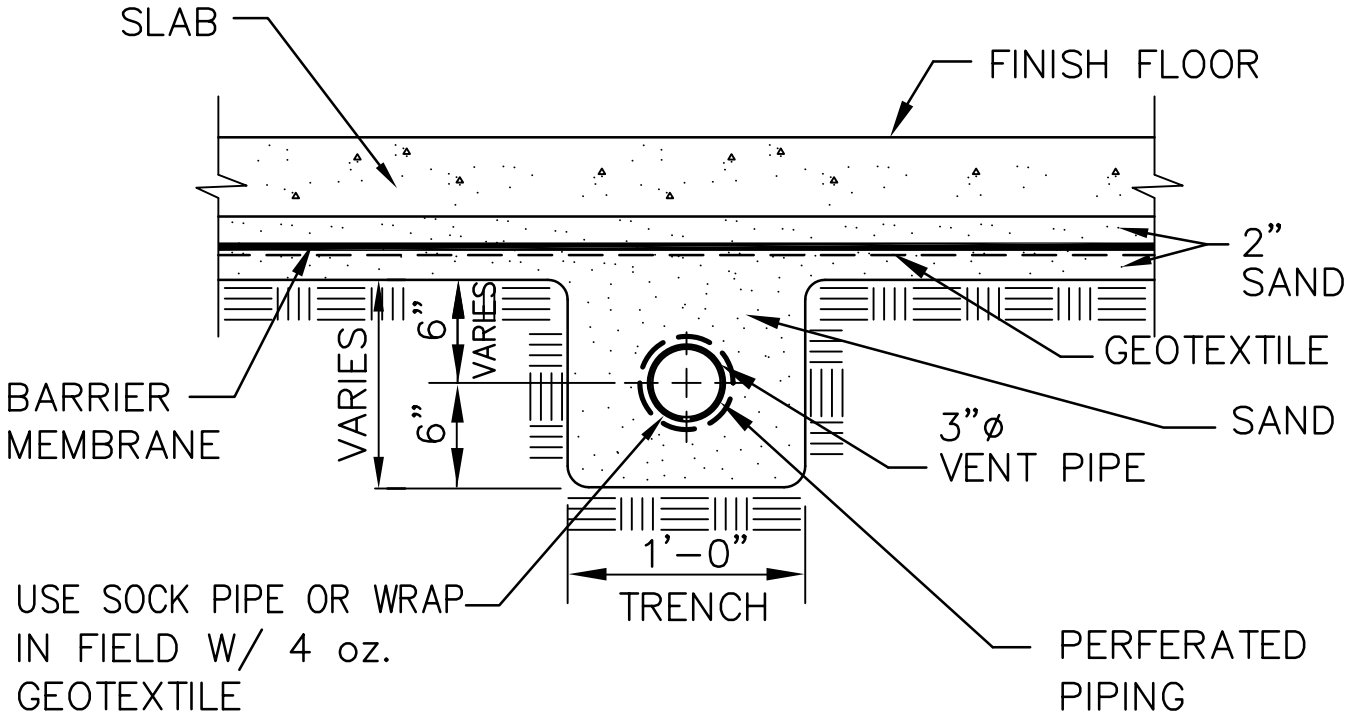
FIRE DEPARTMENT

# VENT PIPING IN UTILITY TRENCH

STANDARD PLAN

F4.2

1. NO VEHICLE TRAFFIC OVER TRENCH, OR USE PLYWOOD OR STEEL TO SPAN ACROSS AT CROSSING. OR
2. INSPECT PIPE IN TRENCH AT CROSSING PRIOR TO MEMBRANE AND/OR SLAB.



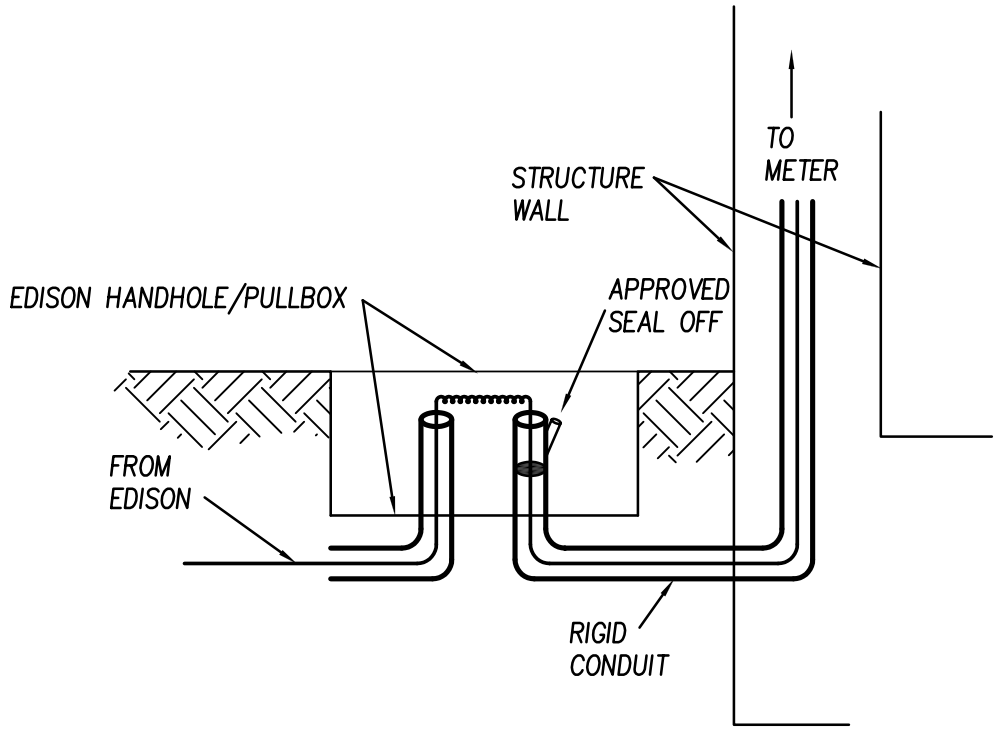

USE THIS DETAIL WHERE VENT PIPING IS NOT IN GENERAL UTILITY TRENCH

CITY OF HUNTINGTON BEACH

FIRE DEPARTMENT

# VENT PIPE TRENCH UNDER SLAB

STANDARD PLAN F4.3



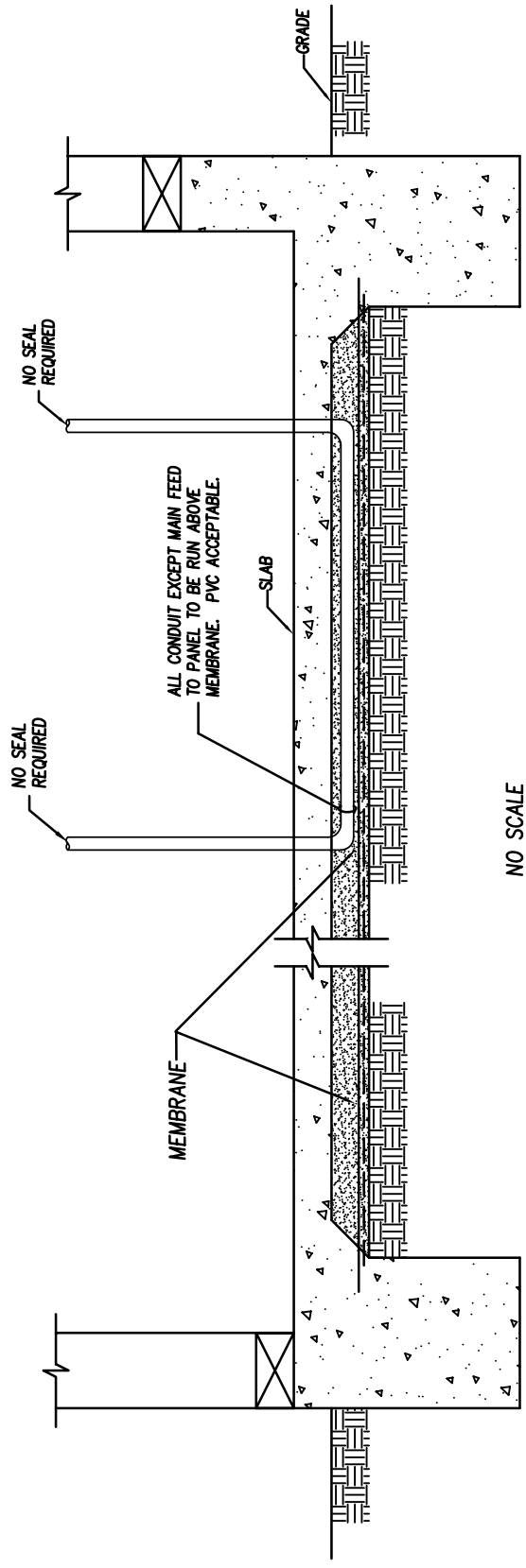

NO SCALE

CITY OF HUNTINGTON BEACH

FIRE DEPARTMENT

# MAIN ELECTRICAL RUN

STANDARD PLAN
F5

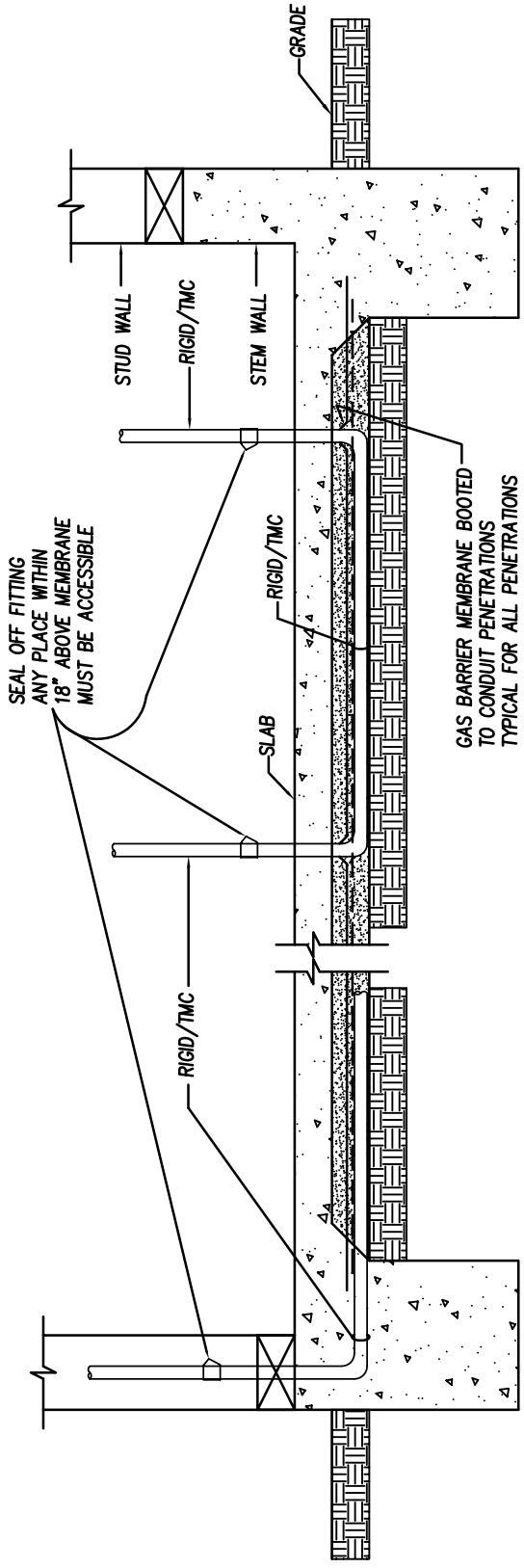



# CITY OF HUNTINGTON BEACH

FIRE DEPARTMENT

## CONDUIT THROUGH UNCLASSIFIED

STANDARD PLAN
F6



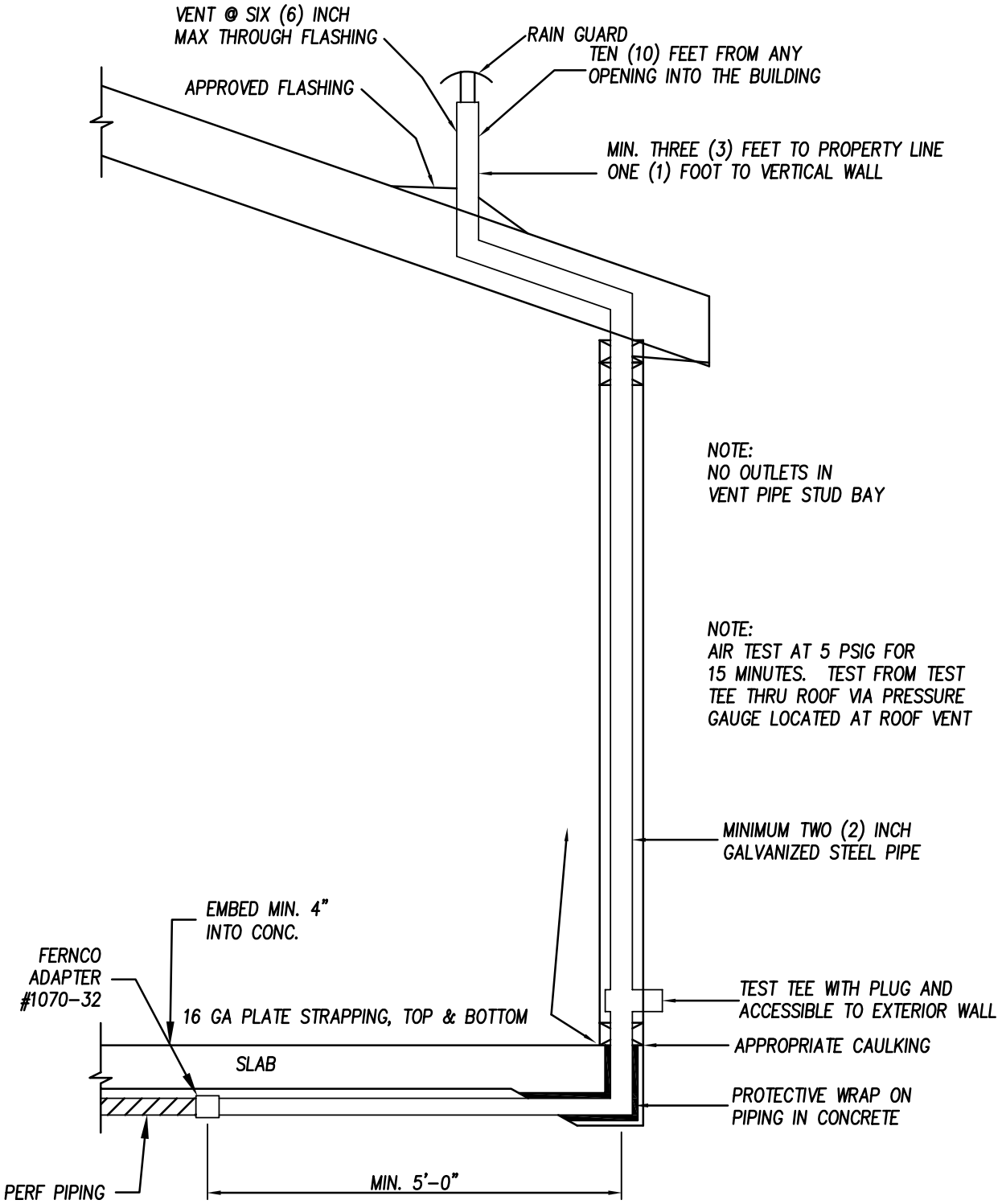

NO SCALE

# CITY OF HUNTINGTON BEACH

FIRE DEPARTMENT

## CONDUIT THROUGH CLASS 1 DIVISION 2

STANDARD PLAN
F6.1




NO SCALE

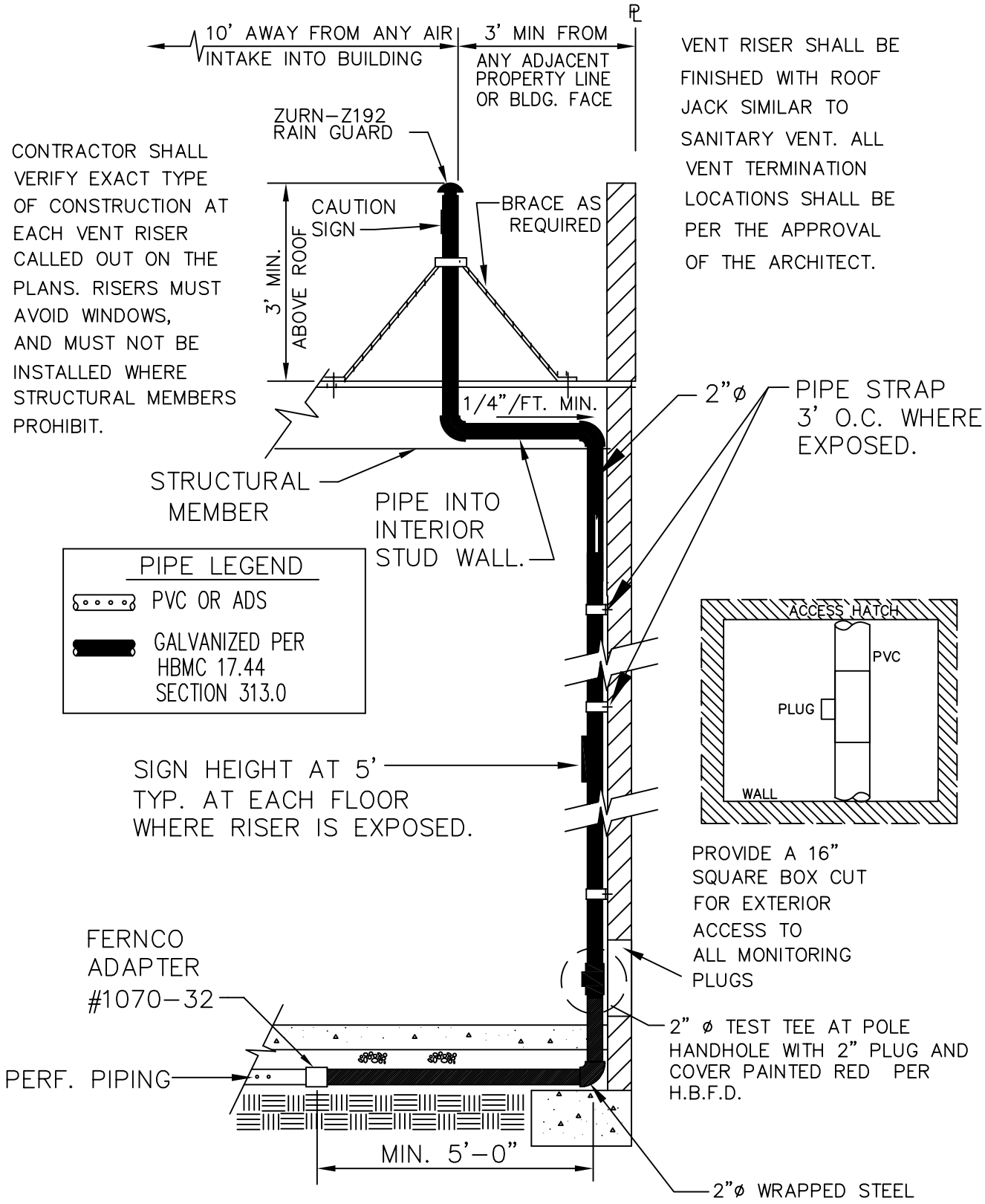
CITY OF HUNTINGTON BEACH

FIRE DEPARTMENT

# VENT RISER

STANDARD PLAN

F7



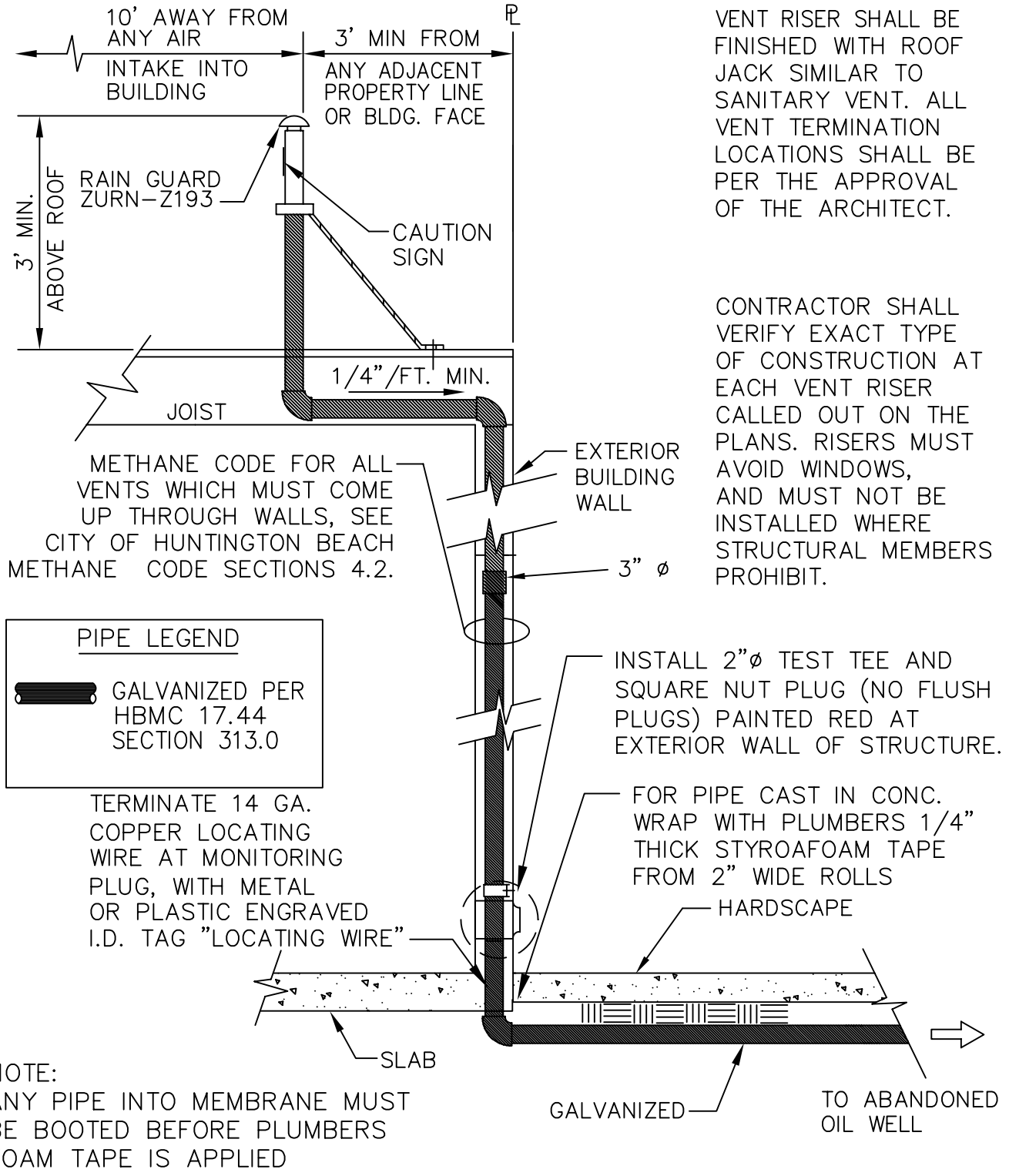

CITY OF HUNTINGTON BEACH

FIRE DEPARTMENT

City Specification No. 429

# VENT RISER

STANDARD PLAN F7.1




VENT RISER SHALL BE FINISHED WITH ROOF JACK SIMILAR TO SANITARY VENT. ALL VENT TERMINATION LOCATIONS SHALL BE PER THE APPROVAL OF THE ARCHITECT.

CONTRACTOR SHALL VERIFY EXACT TYPE OF CONSTRUCTION AT EACH VENT RISER CALLED OUT ON THE PLANS. RISERS MUST AVOID WINDOWS, AND MUST NOT BE INSTALLED WHERE STRUCTURAL MEMBERS PROHIBIT.

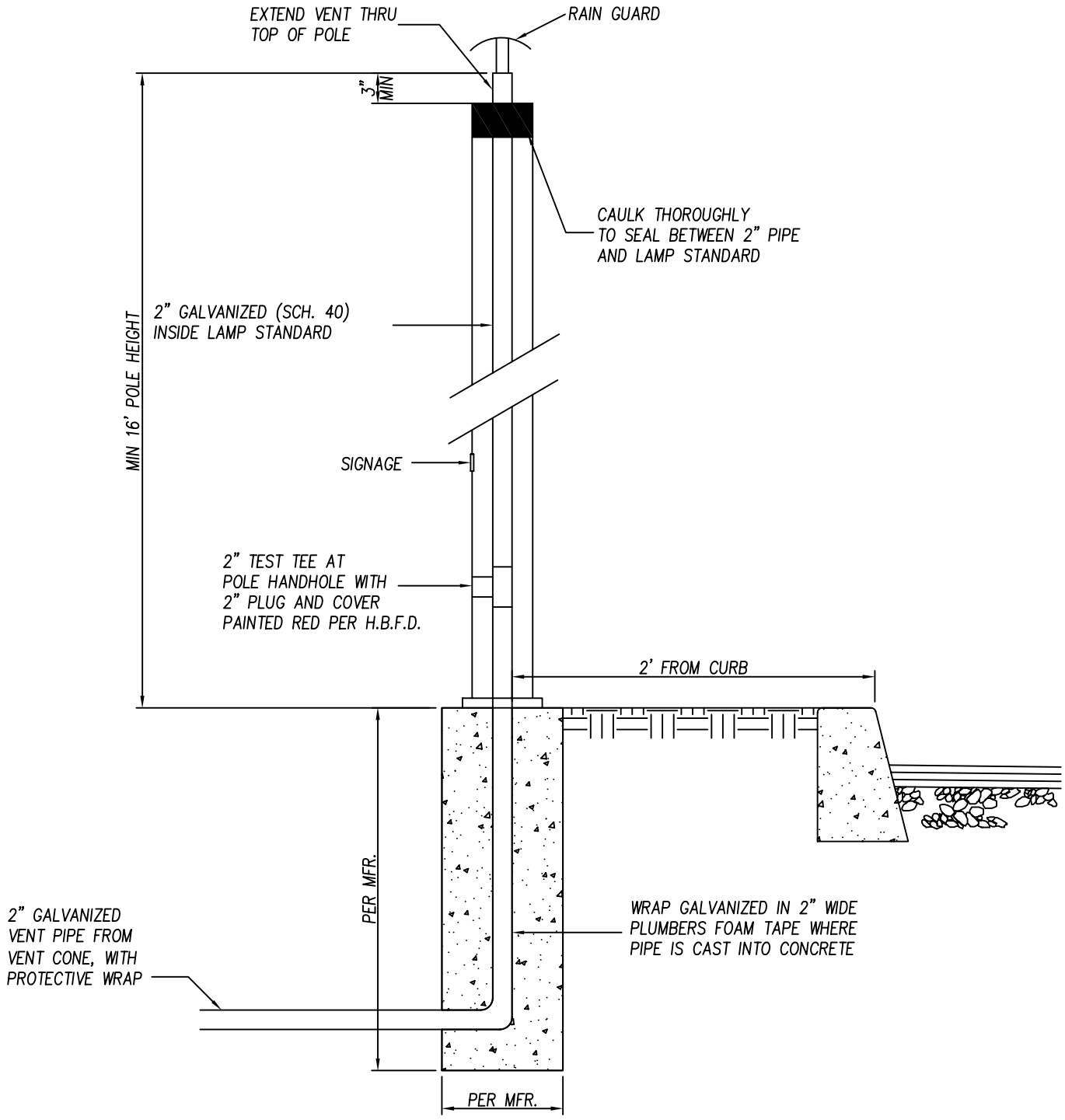
NOTE:
ANY PIPE INTO MEMBRANE MUST BE BOOTED BEFORE PLUMBERS FOAM TAPE IS APPLIED

CITY OF HUNTINGTON BEACH
FIRE DEPARTMENT

City Specification No. 429

# OIL WELL VENT RISER

STANDARD PLAN F7.2




NO SCALE

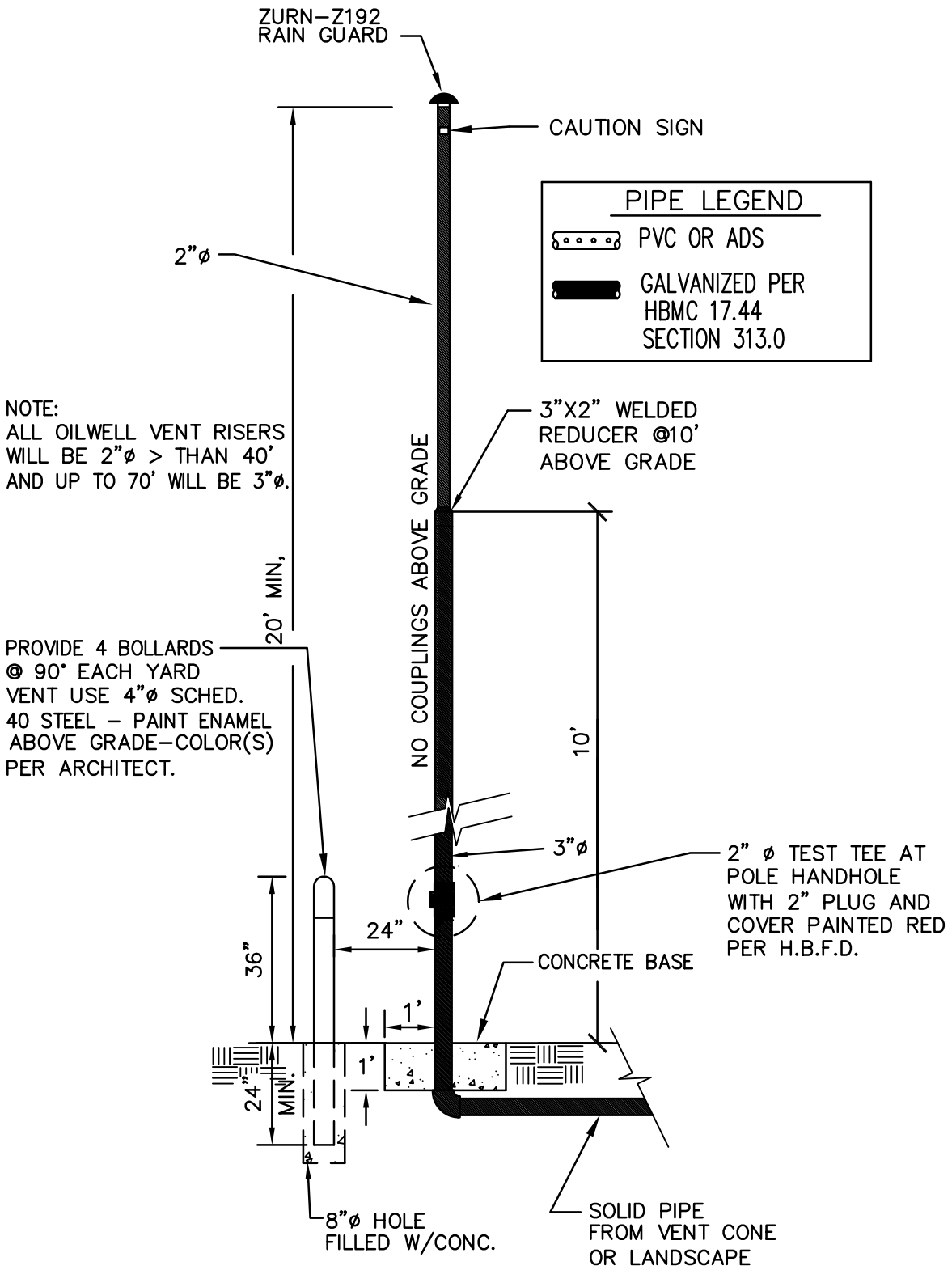
CITY OF HUNTINGTON BEACH

FIRE DEPARTMENT

City Specification No. 429

# VENT TO LIGHT STANDARD

STANDARD PLAN F7.3




CITY OF HUNTINGTON BEACH

FIRE DEPARTMENT

# STAND ALONE VENT RISER

STANDARD PLAN

F7.4

# GAS VENT SPECIFICATIONS

1. ADVANCED DRAINAGE SYSTEMS (ADS).
WHERE ADS CORRUGATED POLYETHYLENE PIPE IS USED ALL WORK SHALL COMPLY WITH THE MANUFACTURER'S RECOMMENDATIONS.

2. PERFORATED PIPING SHALL HAVE FACTORY INSTALLED PERFORATIONS.

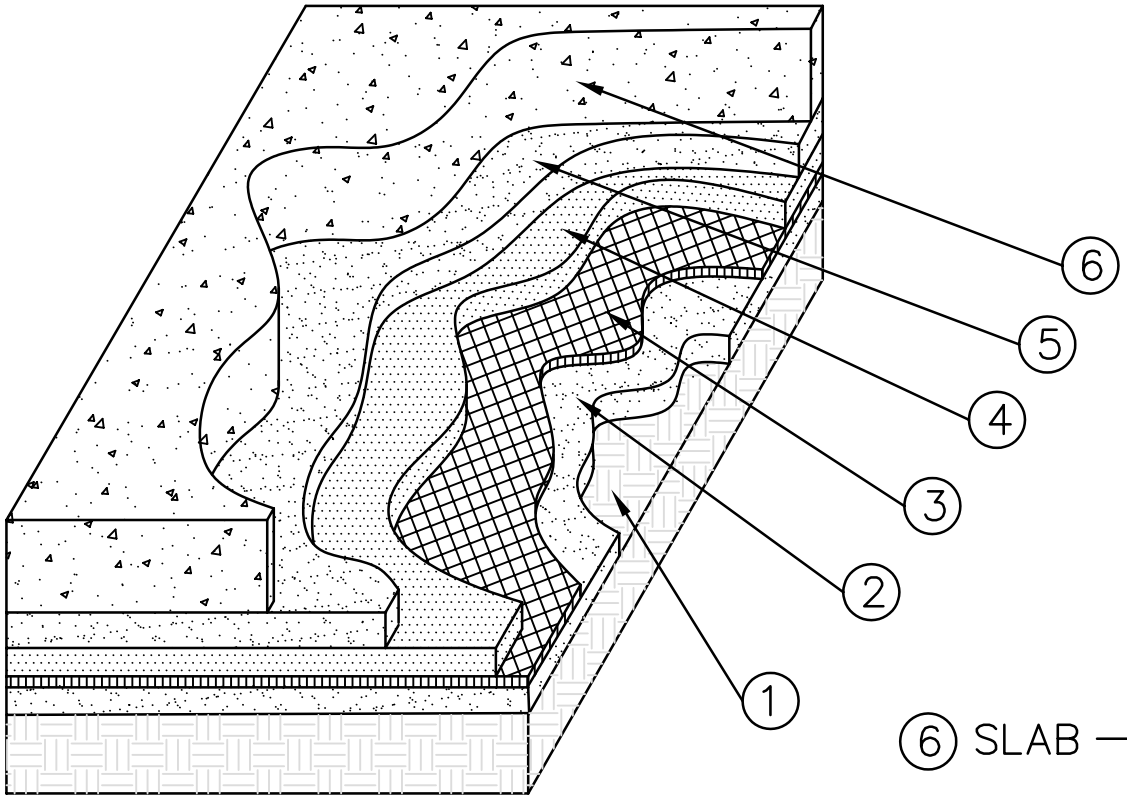
3. TRANSITION FITTING BETWEEN PLASTIC PIPE AND METAL PIPE SHALL BE APPROVED TYPE AND SHALL BE INSTALLED BELOW SLAB 5—FEET BEFORE PENETRATION THROUGH SLAB. MALE PLASTIC SCREWED FITTINGS SHALL NOT BE USED IN THIS INSTALLATION.

4. GAS VENTS INTERNAL TO THE BUILDING SHALL BE TERMINATED ABOVE THE ROOF AT LEAST 3 FT. AWAY FROM ANY ADJACENT PROPERTY LINE AND AT LEAST 10 FT. FROM ANY AIR INTAKE INTO THE BUILDING. GAS VENTS FOR COLLECTION SYSTEMS WHICH DO NOT ENTER THE BUILDING SHALL BE TERMINATED 20' ABOVE GRADE AT LEAST 4' FROM ANY ADJACENT PROPERTY LINE AND AT LEAST 10 FT AWAY FROM ANY INTAKE INTO THE BUILDING.

5. ALL PENETRATIONS SHALL BE SEALED WITH APPROVED MATERIAL IN A MANNER TO PREVENT ANY GAS LEAKAGE INTO THE BUILDING.

6. PERMEABLE MATERIAL FOR USE IN BACKFILLING TRENCHES, UNDER, AROUND, AND OVER UNDER DRAINS, SHALL CONSIST OF HARD, DURABLE, CLEAN SAND, GRAVEL, OR CRUSHED STONE, AND SHALL BE FREE FROM ORGANIC MATERIAL, CLAY BALLS, OR OTHER DELETERIOUS SUBSTANCES. THE CLASS OR KIND OF PERMEABLE MATERIAL TO BE USED IS SPECIFIED ON THE PLANS. WHEN PERMEABLE MATERIAL IS REQUIRED AND THE CLASS AND KIND IS NOT SPECIFIED , 3/8" DIMENSION MATERIAL SHALL BE USED.

7. PIPING INSTALLATION OTHER THAN AS MODIFIED HEREIN SHALL COMPLY WITH CHAPTER 12 OF THE U.P.C.




6 SLAB

5 2" SAND

4 60–MIL CURED
DRY THICKNESS
CMA MEMBRANE
(PLUS GEO THICKNESS)

3 CARRIER FABRIC 4 oz.
PETROMAT GEOTEXTILE
HEAT BOUND SIDE UP

2 2" SAND

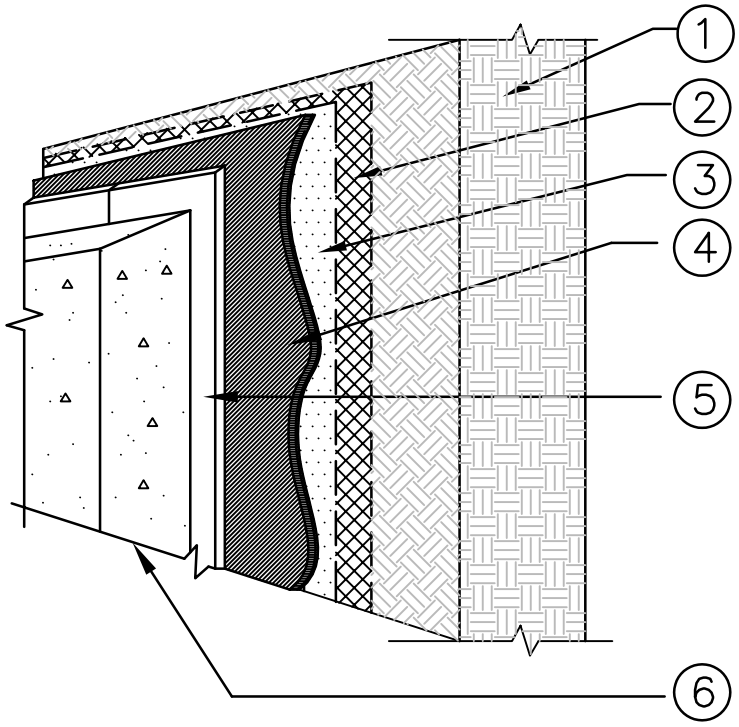
1 PREPARED EARTH SUBGRADE

CITY OF HUNTINGTON BEACH

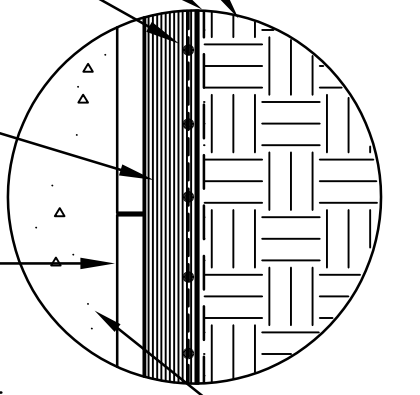
FIRE DEPARTMENT

# HORIZONTAL MEMBRANE

STANDARD PLAN
F9




1. PREPARED EARTH CUT
2. 12 oz. GEOTEXTILE
3. CARRIER FABRIC
   4 oz. TYPAR
   GEOTEXTILE
   PER SPEC'S
4. 60–MIL CURED
   DRY THICKNESS
   CMA MEMBRANE
5. PROTECTION COURSE
   72# CAP SHEET OR
   12 OZ. GEOTEXTILE
   (OR 3X 4 oz.) EXCEPT
   WHERE BONDING IS REQUIRED OF
   MEMBRANE TO CONCRETE.
6. CONCRETE



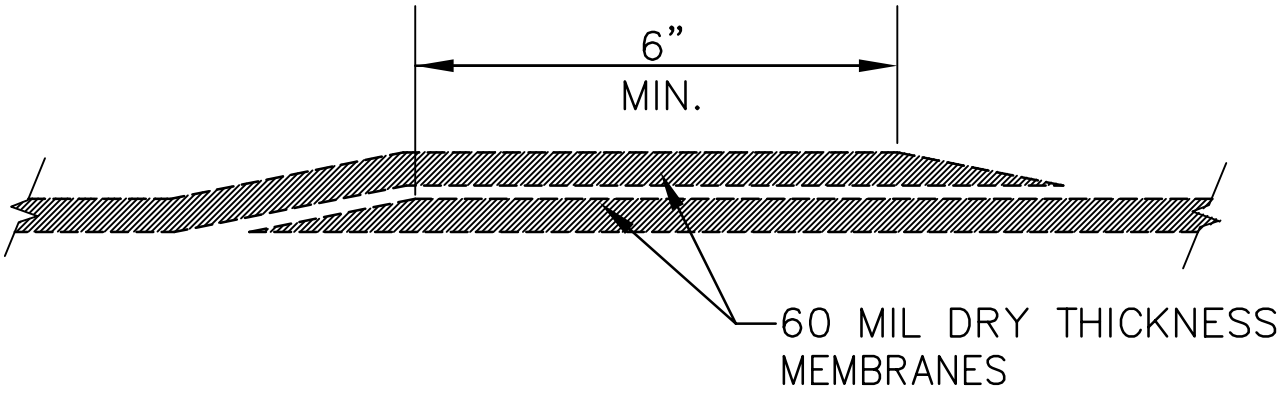
CITY OF HUNTINGTON BEACH

FIRE DEPARTMENT

# VERTICAL MEMBRANE

STANDARD PLAN
F9.1

ALL MEMBRANE FIELD JOINTS SHALL
BE OVERLAPPED A MINIMUM OF 6"




NOTE:

ALL MEMBRANE SHALL BE CLEANED
WITH SOFT BRUSH AND WATER
PRIOR TO SPRAYING LAP JOINTS.

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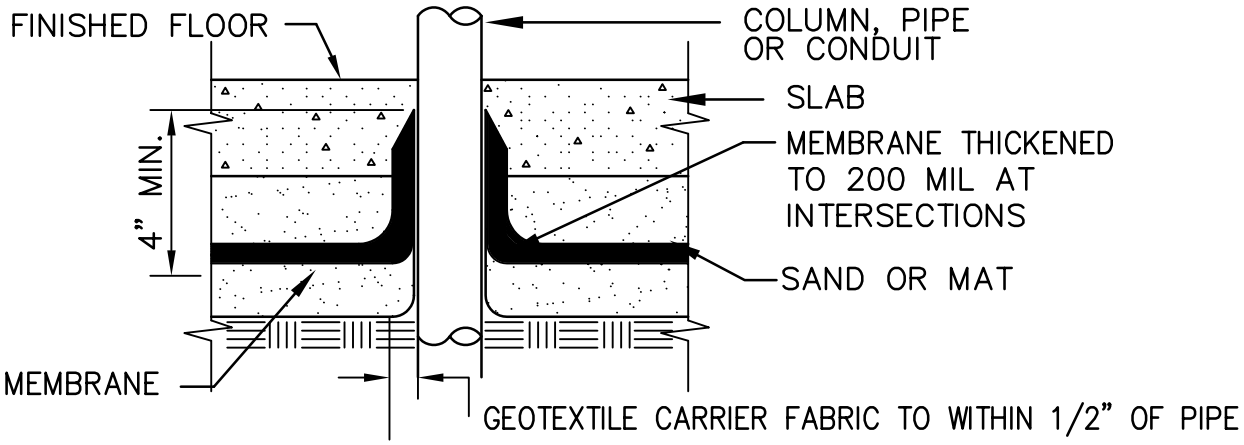
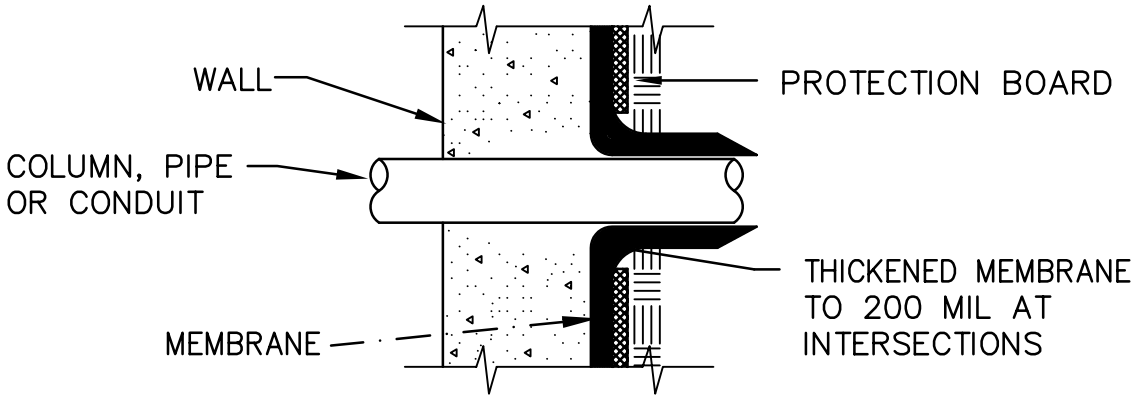
FIRE DEPARTMENT

# MEMBRANE LAP

STANDARD PLAN
F9.2




ALL PENETRATIONS TO BE BOOTED SHALL BE PREPARED CLEAN PER SPECIFICATIONS BEFORE BOOT IS APPLIED.




NO COUPLING IN PLANE OF MEMBRANE

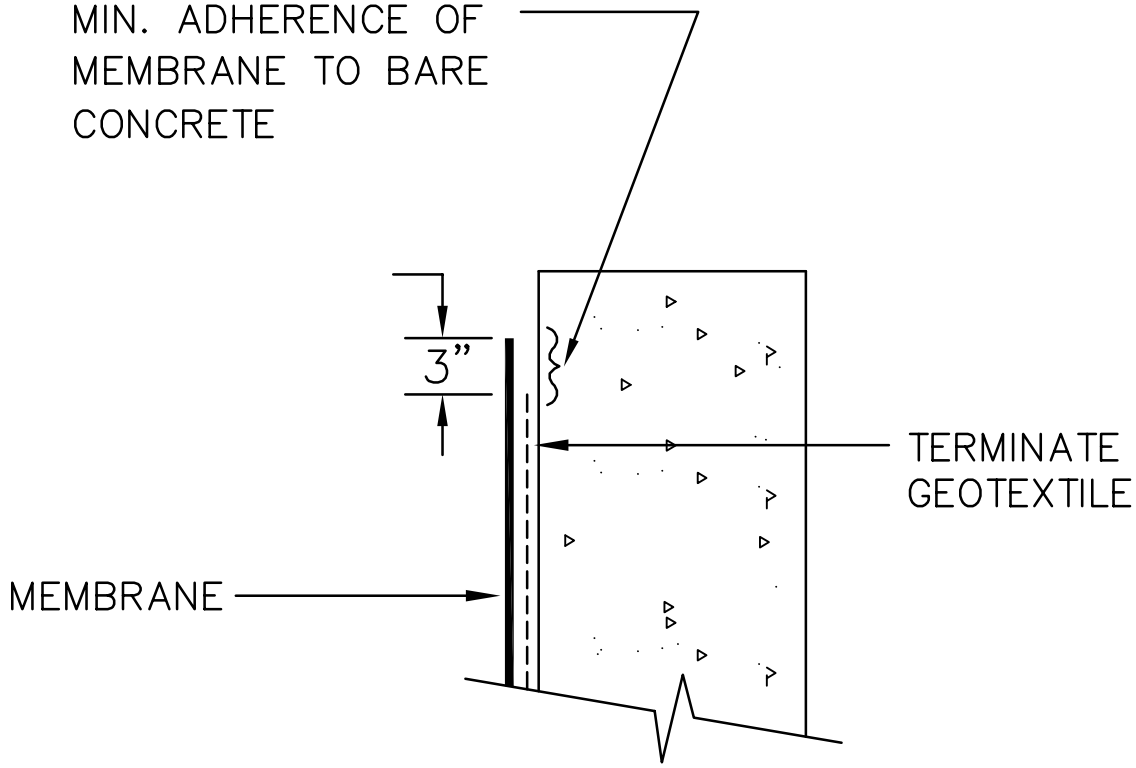
CITY OF HUNTINGTON BEACH

FIRE DEPARTMENT

# MEMBRANE BOOT

STANDARD PLAN F9.3

FORM SMOOTH OR
STRIKE SMOOTH WITH
6" WOOD TROWEL TO
ACCOMMODATE MEMBRANE



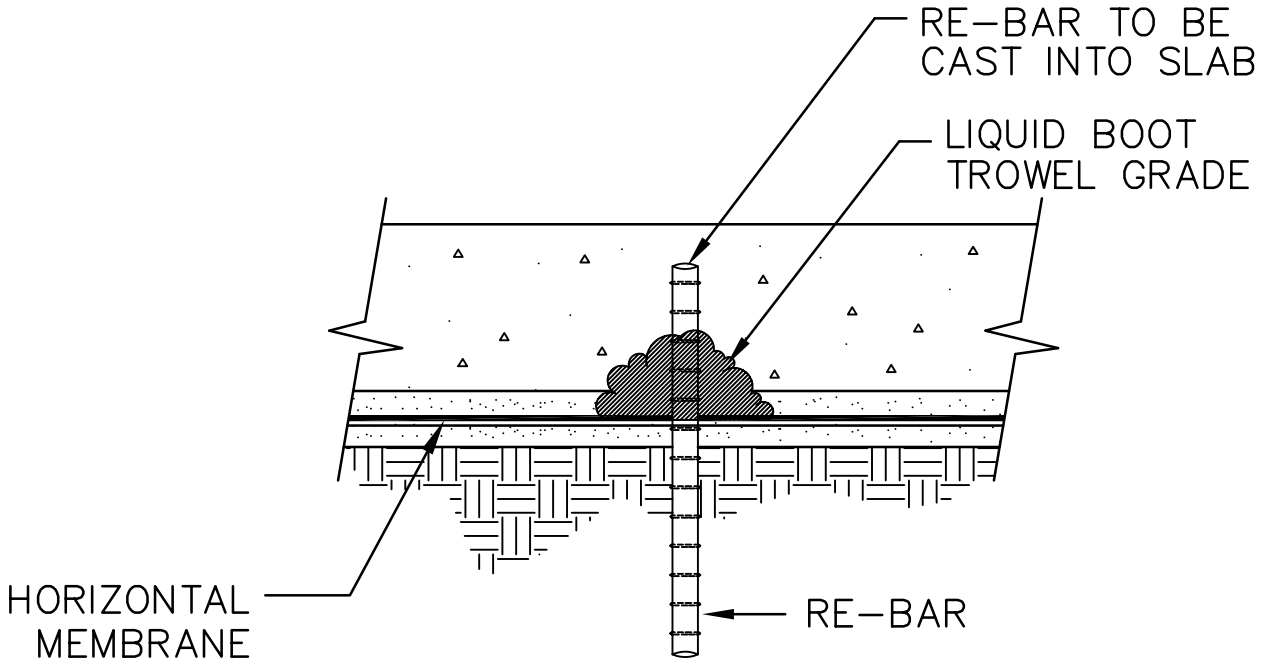

CITY OF HUNTINGTON BEACH

FIRE DEPARTMENT

# GCL TERMINATION TO CONCRETE

STANDARD PLAN
F9.4

THIS DETAIL TO BE USED
ONLY WITH PRIOR
APPROVAL OF METHANE
ENGINEER.



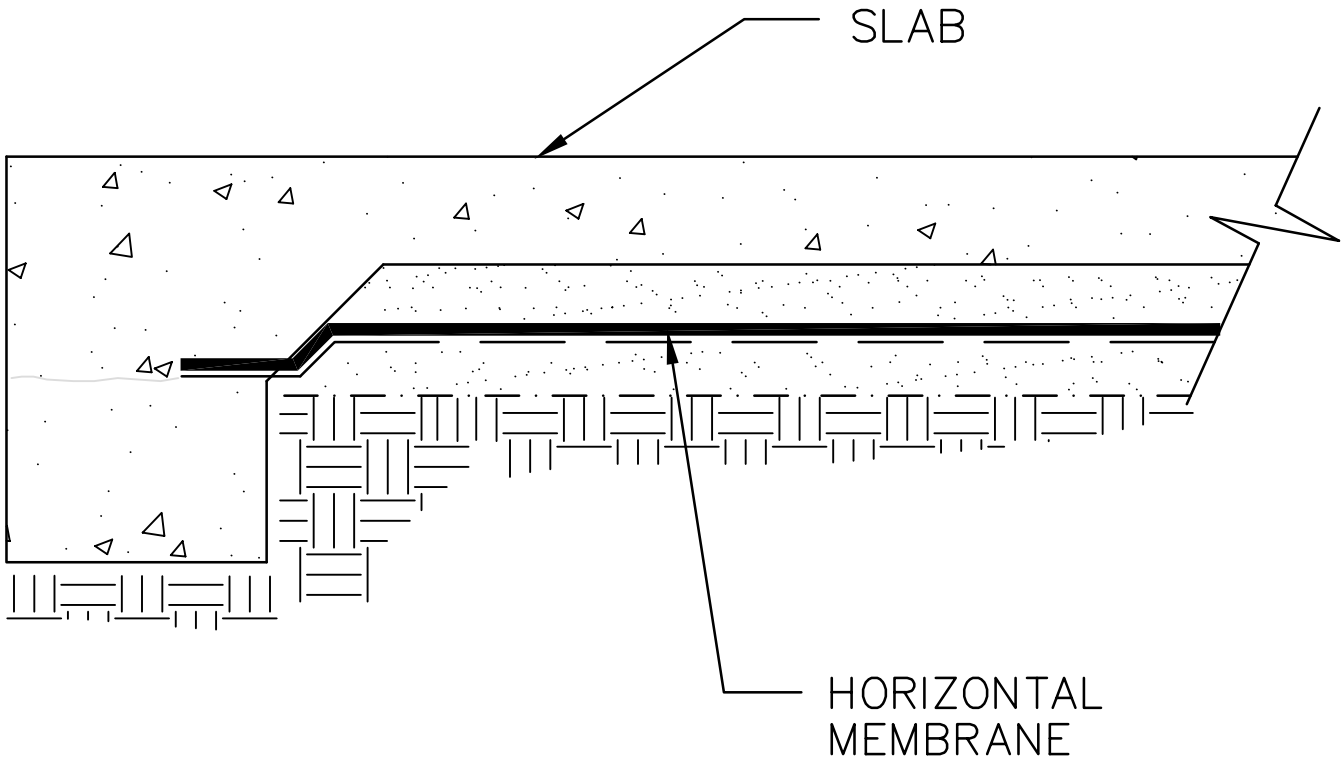

THIS DETAIL IS DEVELOPED TO SATISFY FIELD CONDITIONS AT BULKHEAD STAKES. CONTRACTOR SHALL VERIFY NUMBER OF LOCATIONS PER HOME PAD.

CITY OF HUNTINGTON BEACH

FIRE DEPARTMENT

# RE-BAR PENETRATION REPAIR

STANDARD PLAN
F9.5



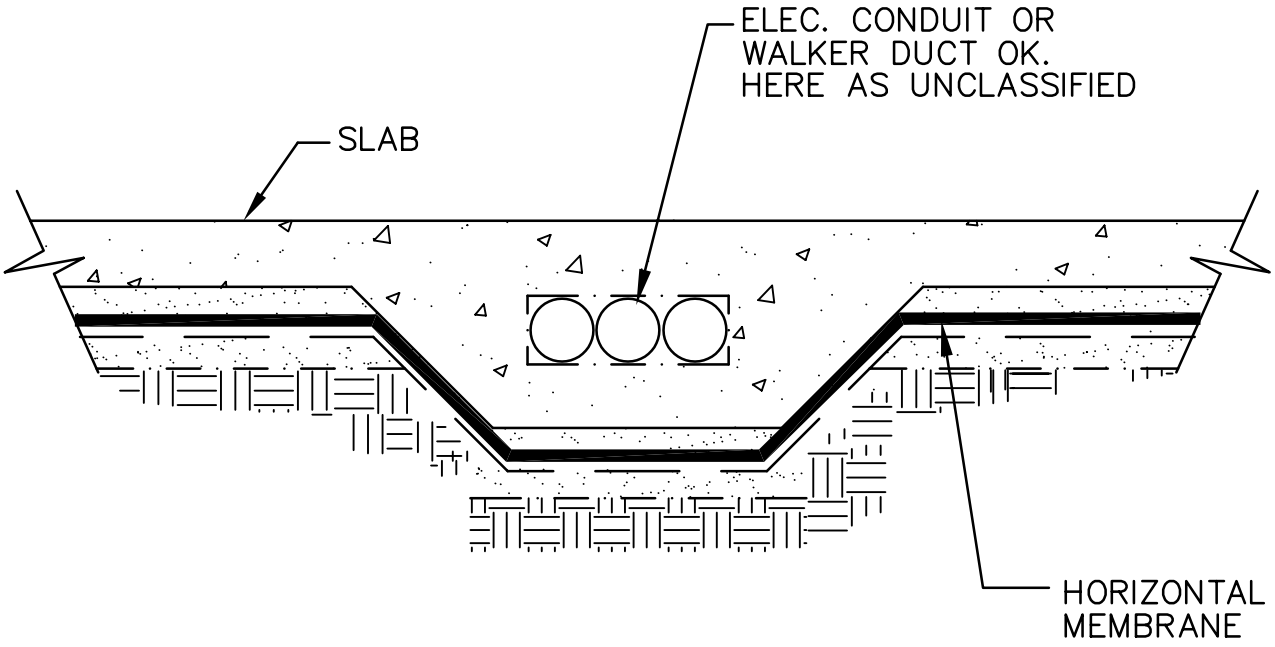

CITY OF HUNTINGTON BEACH

FIRE DEPARTMENT

# MEMBRANE AT EDGE OF SLAB

STANDARD PLAN

F9.6



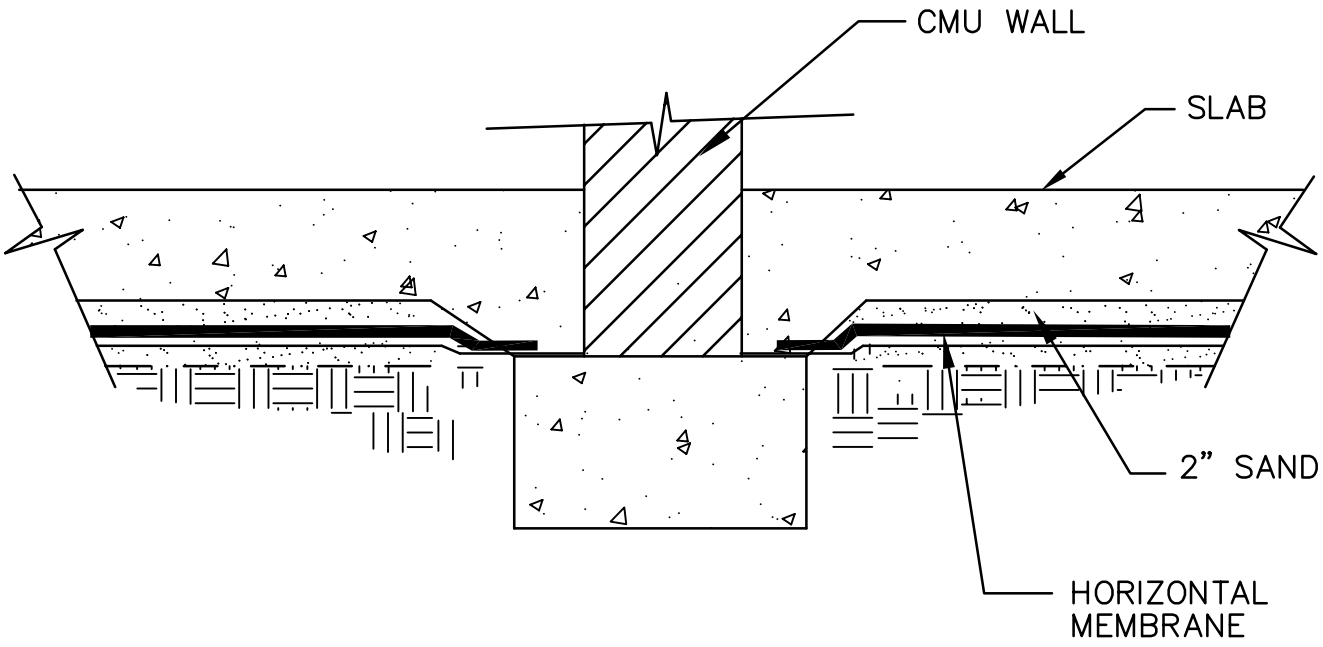

CITY OF HUNTINGTON BEACH

FIRE DEPARTMENT

# MEMBRANE AT WALKER DUCT

STANDARD PLAN

F9.7



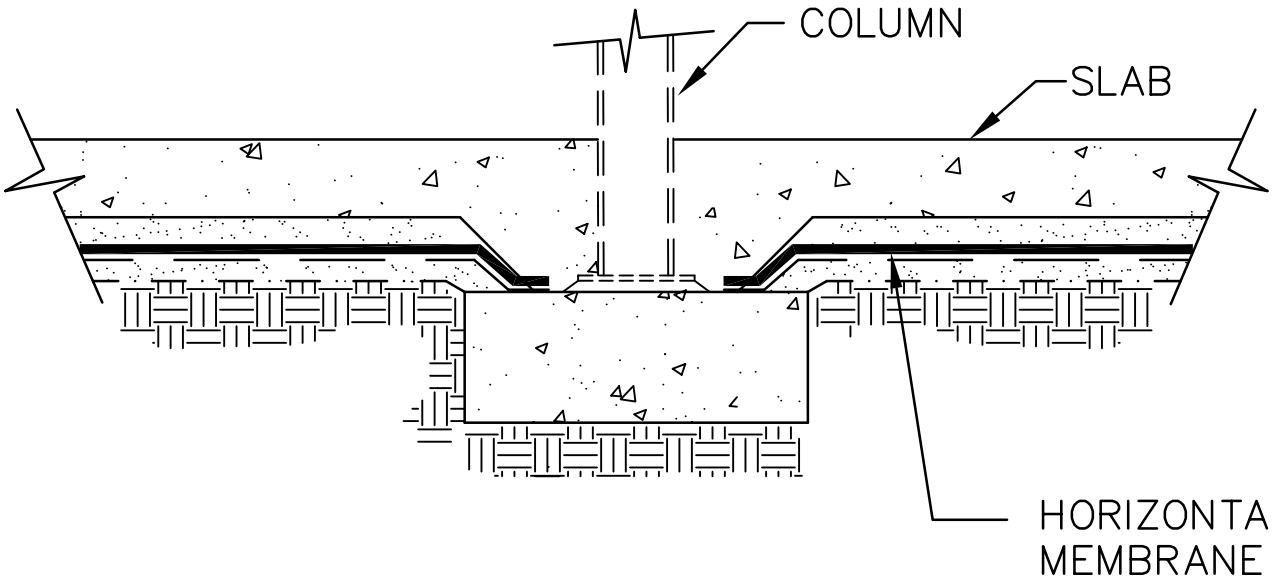

CITY OF HUNTINGTON BEACH

FIRE DEPARTMENT

# MEMBRANE AT INTERIOR FOOTING

STANDARD PLAN

F9.8




CITY OF HUNTINGTON BEACH

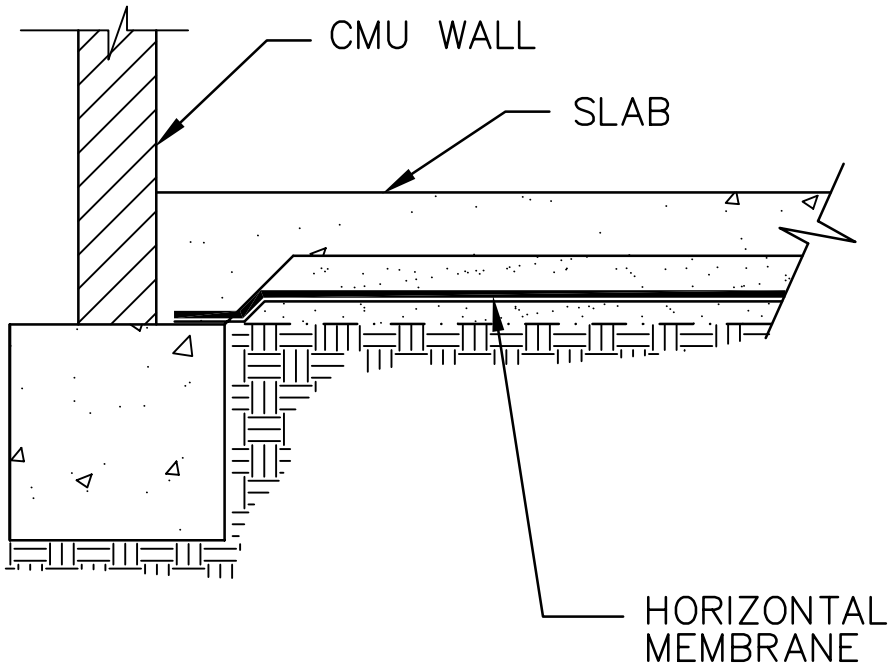
FIRE DEPARTMENT

# MEMBRANE AT COLUMN

STANDARD PLAN

F9.9

LIQUID BOOT MUST BE SWEPT CLEAN
OF DIRT AND DEBRIS TO SATISFACTION
OF METHANE INSPECTOR PRIOR TO
CONCRETE POUR TO ENABLE BONDING
OF CONCRETE TO MEMBRANE

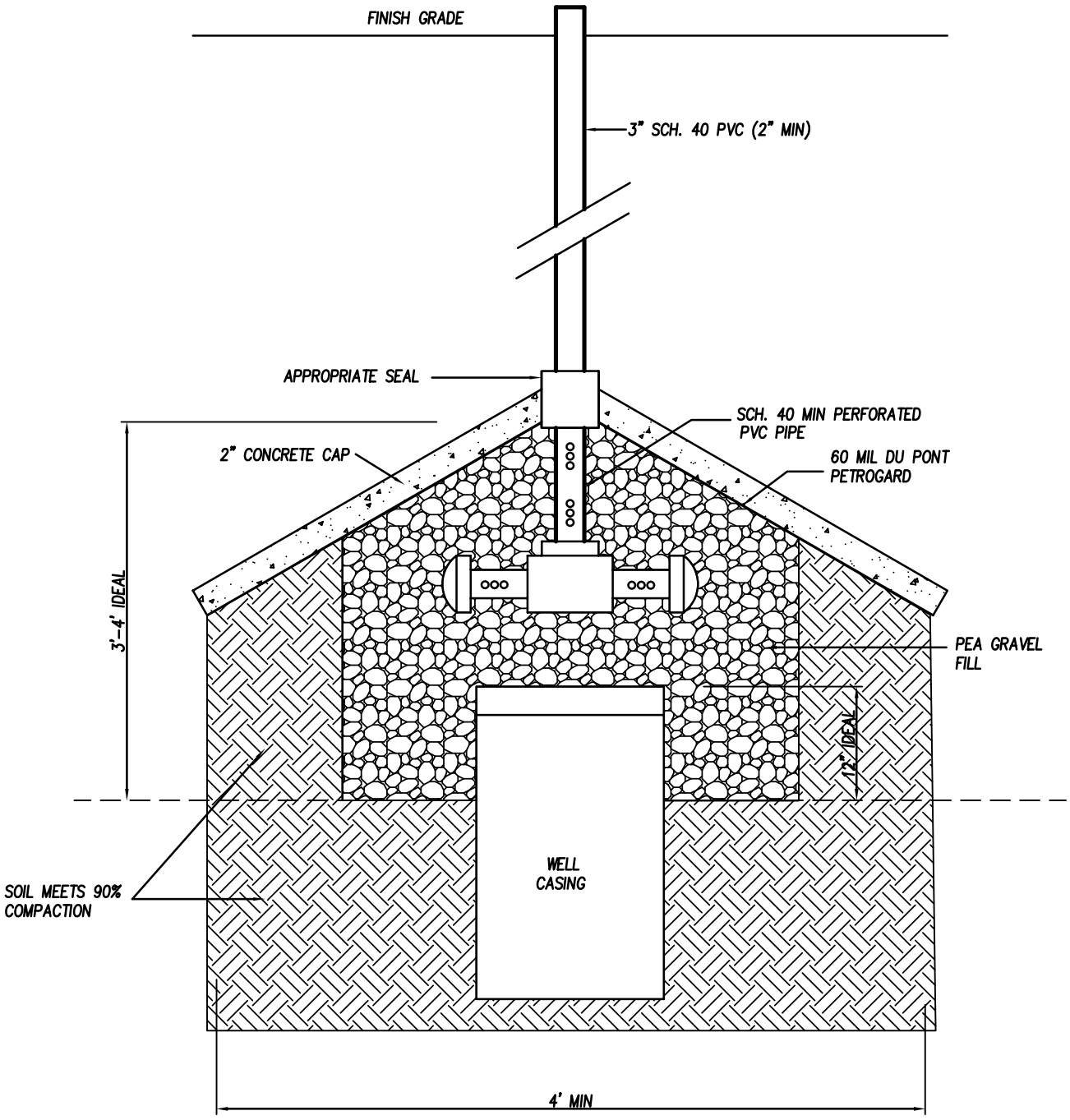



CITY OF HUNTINGTON BEACH

FIRE DEPARTMENT

# MEMBRANE AT EXTERIOR FOOTING

STANDARD PLAN
F9.10




NO SCALE

# CITY OF HUNTINGTON BEACH

FIRE DEPARTMENT

## HUNTINGTON BEACH WELL VENT 2A

STANDARD PLAN F10